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INTRODUCTORY ADDRESS.

THE METHODS IN MEDICINE IN THE NEAR PRESENT.

BY J. M. DACOSTA, M. D., LL. D.,

Professor of the Principles and Practice of Medicine, etc.

An Introductory Lecture to the course at the Jefferson Medical College for the Session of 1887.

The custom of opening institutions of learning with some ceremony is an old one. In past centuries the beginning of the academic year was celebrated by a formal procession. In it walked the Rector, preceded by an officer bearing the silver mace or other insignia of his high office, the Governing Board of the University, the Professors, the Masters of the different Faculties in their striking dresses, and a line of young men, often carrying branches of trees and flowers, many of them very happy at having passed the learned entrance ordeal, and wearing for the first time the distinctive garb of students. Amid the ringing of bells and much pomp the assembly came to order, and a Latin address saluted the members of the University, and inaugurated its exercises.

The spirit of the age has greatly changed all this. At most of the famed seats of learning on the Continent each teacher begins his branch on the appointed day, without a previous gathering. In England and in this country, certainly in the medical faculties, there is very commonly still a preliminary assembly with a general introductory to the course of study. The Dean deputes the office of opening the session to his colleagues in turn; and I appear to-night to salute you,—as I now do warmly,—for our Dean, who with his invisible mace of office I wish had handed over his genial eloquence.

In selecting a subject to lay before you to-night, I thought it might not be without advantage to bring together a few observations, such as any one who watches the times can make and accept, on the methods in medicine likely to be the prevalent and fruitful ones in the near present. We live in a period of alertness and upheaval. Powerful forces are at work clearing new pathways, crushing obstacles, hewing into rock here, building galleries there. Restless activity is undermining much of what is old, and asking if it be not better to sweep it all away, and to construct everything anew on different lines. Amidst all this bustle and din, it is well to stand for a moment aside to examine whither we are tending, and in how far the new results can be shaped into means of permanent use. If, in trying to group together some thoughts on the methods in medicine likely to prevail, I appear too sanguine of immediate effect from present work and thought, I beg you to reflect on

the gigantic strides medicine has made since the beginning of this century. and how fair it is to presume that, with more workers and improving ways, we shall soon get even quicker and more decided results. Medicine, as we now see it, is almost a new science; scientific medicine, indeed, had scarcely an existence a hundred years ago. It was born with Harvey, but it slumbered until it awoke with Morgagni, with Auenbrugger, with Jenner, with Laennec, with Bichat, with Bright, with Charles Bell cradling it and guiding its childhood.

The methods in medicine in the near present are certain to be based on the growth of knowledge in the fundamental branches, in anatomy, in physiology, in chemistry, in hygiene, in general pathology and morbid anatomy, as well as on its self-development by improved means of observation and by experiment.

Let us take anatomy. Is it progressing, and what may scientific medicine further expect from it? The limitation of gross anatomy was with few exceptions reached long ago, and this has been fully recognized by anatomical teachers. Indeed, it was so admitted early in the century. Barclay, a most popular lecturer in Edinburgh, Sir Robert Christison records, used to warn his hearers about rushing into print with supposed anatomical discoveries, as they would be sure to find themselves forestalled. He compared anatomy to a harvest field. First came the reapers, Vesalius, Fallopius, Malpighi, who cut down great store of corn. Then came the gleaners, who gathered up from the bare ridges ears enough to make a few loaves of bread. Such were the anatomists of the last century, Valsalva, Haller, Winslow, the two Monros. Last of all came the geese, who still contrive to pick up a few grains among the stubble, and waddle home cackling with joy because of their success. "Gentlemen," the lecturer concluded, "we are the geese."

Yet, though it be true that gross anatomy is complete, we must ask for further service from the anatomist. We want him to teach with more precision and with a full recognition of its importance, regional medical anatomy, the anatomy of internal organs in their relation to parts around them likely to become implicated in disease and to the external coverings of the body. We also need accurate information as to nerve terminations and anastomoses, both in viscera and on the skin, and as to the courses of nerve-fibres in parts of brain and of spinal cord. The great attention now given to nervous pathology and to the application of electricity calls for this; and while much of the anatomical work is done, it still requires definiteness and clearness to serve the purposes of the clinician.

The great advance in anatomy in this century has come through Bichat's work in general anatomy, and the study of microscopical anatomy which it ushered in. An insight has thus been gained not only into the character of tissues and their association, but a philosophical anatomy has been created, which, elaborated by great naturalists, by Agassiz, by Owen, by Leidy, has taught us to study the entire animal kingdom as a whole; to appreciate the relations of the same textures in the highest as well as in the lowest forms; and to view with ever increasing wonder the admirable adaptation and design in Nature. It has done more. It invites us to extend our studies into one form, in the certainty that, the fuller we do so, the better we shall understand all. It has done yet more. It has aided us physicians greatly by letting us appreciate the kindred diseases of identical textures, no matter in what part of the body situated; and by explaining to us the similarity with which remedies affect these textures, whether they be in one or another organ. General with minute anatomy is thus acting on medicine by making it broader, more scientific.

How is physiology influencing medicine? It is not for me to review here its general advances. The study of functions is doing something to tell us how secretion, nutrition and growth are brought about. But not enough of this knowledge has been gained to become a basis of scientific therapeutics. It may be ours some day, and with it may dawn an era in which disease will be modified or strangled at its birth. What physiology is now working out

efficiently for us is in the elucidation of the nervous system. The great problem of the functions of special centres in brain and spinal cord is being settled; and with this advance we have gained not only in disease recognition, but in disease cure. It seems marvellous to read in journal after journal of the day of more and more instances in which deft hands, acting in the light of the correct appreciation of symptoms made only possible by the physiological labors of Broca, of Ferrier and their followers, have removed tumors of the brain, successfully, and saved lives. The knowledge which influences these actions will grow, and in the near present lead to the most brilliant results.

Chemistry is doing much for medicine. She is constantly adding valuable compounds, such as the bromides, the ethers, chloral, and nitroglycerine have been found to be. She is extracting from well-tried agents the active principles, such as atropine, hyoscine, aconitine. She is busying herself, as new plants are proved to possess healing properties, with isolating their valuable and most available parts. She has already taught us so much of the character of the secretions, that we justly condemn one who does not avail himself of his test-tube as criminally ignorant or neglectful. But we still want from her simpler means for the ascertaining of the quantities of the ingredients in the secretions. We want ready methods for the sake of practical utility. And we ask that her work be brought into closer connection with bedside work; that we may understand not only the character of the secretions in a given disease, but the variations in them in the different phases of the same disease,—knowledge which would be very valuable in foretelling issues.

Chemistry has entered upon a most hopeful search in the study of the poisons developed by decomposition. It is not only that these "ptomaines," which have been found in diseased or putrid meat and fish as well as in stale eggs and in cheese, explain the poisonous symptoms which we know these articles to occasion; but the alkaloids of decomposition occur also in the human body, there due to cadaveric change, or formed prior to death. The system through their presence may poison itself, and it is likely that by their study we shall get a solution more certain than we now have of the features of uræmia, of the brain-disturbances of bad forms of jaundice, of venom-poisoning, of the disorder in low and putrid fevers, and in many a state which we vaguely call blood-poisoning. Who knows, too, but what we shall understand—what now we appreciate, but do not understand—how strong emotions, how love, fright, anger, or how excessive fatigue produce illness; doing so, perhaps, by developing in the altered secretions a poison disturbing the nervous system or corrupting the blood.

The physician in the times near at hand will be a very decided sanitarian. As it is, we are all sensible of the growing importance of hygiene. We know the value of sunshine, of fresh air, of open spaces, of pure water, of wholesome food, of appropriate dress, of cleanliness, of effective drainage, of thorough disinfection. We appreciate the use of innocent recreation. We feel the necessity of saving young lives from premature exhaustion by the drain on their unformed powers from overwork, especially from the senseless cramming into jaded brains of useless knowledge. We take heed of the exercise that soothes and refreshes, that fits mind as well as body for better purpose, and of the excessive devotion to it which injures both.

But we have still the task before us of making people generally understand all this; and at the task we must go with the aggressiveness of decided conviction. No faint words; no half-measures. Ignorance, cupidity, the obstructive, terrible force of inertia, must be made to feel that they have a deadly enemy at work in every member of our profession. Do you think it unnecesary to be so active? Listen to the report of a Committee to the American Public Health Association a few years since.* Of the whole number of deaths in the United States as ascertained by the census of 1880, not less than 200,000, or considerably more

*A. N. Bell. "Public Health Papers and Reports," Vol. X. 1885.

than one-fourth of them, were due to epidemic diseases. Measured by the known results in places exempted, by energetic means for their prevention, from the prevalence of epidemic diseases, if these means had been made general throughout the United States, 100,000 of the sacrificed host would probably have been saved. Listen also to these ghastly statistics taken from the recent writings of an eminent sanitarian.* They are more particularly concerned with childhood. "Children under five years of age," we are told, "are expected to die in what may almost be a definite proportion." Examining different countries, we find that of ten children born in Norway only a little over seven attain their twentieth year; in England and in the United States of America, somewhat less than seven; in France, only five reach it; and in Ireland, less than five. What a record when we take into account that most of the diseases of childhood are preventable diseases, and that with a just hygiene they would be reduced to insignificant proportions.

But we need not despair of effecting much by sanitary means properly used. Let us look at results already accomplished by means as yet far from perfect. I will quote, as concerning us all most closely, some of the results obtained in our own country. In Michigan the saving of life from scarlet fever alone has amounted in the last eleven years to 3718. In Memphis, the drainage of which was some years ago in the worst possible condition, the death rate has been reduced in six years from 35 in a thousand to 23.80 in a thousand; in Chicago, in the last five years, from 25.69 in a thousand to 19.46, a saving of 17214 lives in that city during this period†. If then already something is being done, how much more can be done by persistent and united effort. The medicine in the near present will be as largely a medicine of prevention as a medicine of cure. Let us trust that that it will be even more so. Let us go on in our noble endeavors to be efficient preventers as well as efficient curers of disease. Let us go on with courage and devotion in the self-imposed task of teaching how to lengthen life and to add blessings to it. Let us go on with increased power presenting the splendid spectacle of a profession, earnestly and in its loftiness, striking at its own existence, and, for the common good, endeavoring with all its might to immolate itself.

Much of the advance in medicine of late years has been brought about by the study of General Pathology and Pathological Anatomy. Neither receives in this country the attention it deserves. Yet it is the pathologist who develops into the best clinician. Morbid Anatomy is certainly the very foundation of the recognition of disease; it is to the physician what Anatomy is to the surgeon. But it is invaluable, too, to the surgeon. A great teacher recently gone from us, one whose sagacious words were so often almost reverently listened to in this very hall, the late Professor Gross, records, in his autobiography, the immense benefit Morbid Anatomy was to him as teacher, writer, practitioner, and bewails as one of the crying sins of the day its being taught in so few of our schools. But pathological science is cultivated with assiduity by some here and by many in Europe; in the medicine of the near present its full appreciation is certain, and its methods will be the approved methods of great progress.

In General Pathology there is just now the greatest activity, due to the discovery of minute, living organisms in the body; many, indeed, are the speculations as to what these germs, these infinitely small bodies discernible only with the microscope, have to do with the production of disease. The speculations are not new; and standing in this place it is a pleasure to point to it, that one of my predecessors in the chair of medicine, Professor John K. Mitchell, with rare sagacity and keen analysis, was among the very first to lead the way on this fruitful path of research. In relapsing fever, in tuberculosis, the influence of bacteria has been established; in many other,

*B. W. Richardson. The Commonhealth, 1887. "Essay on the Seed-time of Health."

†Rohé. Address in State Medicine before the American Medical Association, Chicago, 1887.

especially infectious maladies, we may fairly infer microbes to be the cause, or to play at least an important part. The whole medical world, dissatisfied with its knowledge of the causes of diseases, particularly of communicable diseases, is restlessly seeking out these little bodies of specific power. It feels that if it can be made a demonstrated truth that they are causative agents, not only will the mist of conjecture vanish and science henseforth walk in broad daylight, but there will also be hope of overthrowing disease at its very beginning, through means which vanquish its parasitic source. Indeed, already now "Death to Bacteria" is the rallying cry of many of the eager workers in curative as well as in preventive medicine.

Thus far, it must be confessed, we have had, as regards internal medicine, no success in the search after agents which destroy the germs. The articles proposed are as apt to poison the patient as the microbe; some would be even more destructive; and none can be as directly and as completely brought into contact with parasitic life in organs or in the blood as surgeons bring them in contact in their antiseptic treatment of wounds and injuries. But must we despair of conquering these germs? It is not too sanguine to anticipate that if their paramount importance be fully established, the means for their destruction will be found. When has any discovery stood still? Look at the wonderful uses of steam, and remember what it was in the time of Watt. Recall the simple experiments of Volta, of Galvani, and of Franklin and think what the great agency they found has become in these days of electric telegraphs, of electric lights, and electric railways, and of applications more dazzling than the imaginative creations of all the Eastern fairy tales. Reflect that life means progressive development, means the present and the future, not the past; and then venture to say that progress stops, and that it will be impossible to bring under control or to stamp out hosts of diseases by crushing their ascertained minute causes!

The whole science of bacteriology is still very young. The greatest practical gain has been to the surgeon, and in the better knowledge of disinfectants for the destruction of the noxious organisms outside of the body. In medicine we are still for the most part groping after the truth, hoping with it to find new lights, new means. And it is not certain that, in the glimpse we have caught of this bewildering microscopic world, we have reasoned clearly about its members. Are the particular micro-organisms seen in special diseases necessarily the specific source? May they not be in some instances causative; in others simply the recipients and carriers of disease; in others again merely the followers or attendants on the unknown something that eludes our search? Further, is not their number as well as their presence important in producing morbid action? What we already feel the need of is not the mere accumulation of observations, but better appreciation of the relative value of the facts. We greatly want here what I may venture to call "scientific prospective;" and scientific prospective must be a method in bacteriology, if this promising science is to become the help we all hope it will be.

There are few subjects in scientific advance which have attracted more widespread interest outside of professional circles than the doctrine of bacteria. In these days of rapid diffusion of knowledge, microbes are being thought about and glibly talked about by many who take general notice of the progress of scientific inquiry. The widest appreciation of the matter is certainly the most desirable. Yet is there not some danger, or rather discomfort, lurking in this, unless we are careful to let go hand in hand with its dissemination, a full appreciation of the relative value of the observations? Will we otherwise not have to face a new form of an old disorder? When I see in popular journals descriptions of the minute organisms in the water we drink, or attached to the food we eat; when I hear the ingenious researches commented on that show some of the worst of them, as of the bacillus of tubercle, floating in the air of places of amusement; when in a literary monthly review of great repute I meet with an able article on the "Creatures we

Breathe,"* and find that an enthusiastic observer, seated in a railway carriage, notes on the closed window of a compartment containing ten persons, upwards of three thousand organisms falling on the square foot in one minute, —I wonder whether fright and terror is to be induced by all this, or what will come from its constant contemplation. I begin to think of new forms of hysteria and of hypochondriasis. I perceive the bacterial hysterical girl; the bacterial hypochondriac. Before me rises the bacterial hysterical girl, pale with fear and going off into spasms under the dread that something she has handled or tasted contains these dreadful parasites. I see the hypochondriac, who for years has been watching his secretions, now armed with a microscope, searching out and counting bacilli. A new sort of self-torture, but also a new, gloomy pleasure has come into the existence of this bacterial Monsieur Argan of the nineteenth century:—

"To him no longer life is as tedious as a twice told tale,
Vexing the dull ear of a drowsy man."

He is taking his share of the advantage of living in a scientific age. I see him confronting his busy medical attendant with comparative tables made up from his daily watchful countings, and I fear I hear the representative of science wishing, under his breath, that he had lived before the introduction of the microscope, lived certainly in the præbacterial period, or had never been born at all.

Thus far we have been regarding the tendencies in Medicine, and the ways that will develop out of them in the near present, in connection with the general foundations of the science. But after all everything comes at last to the bedside for judgment on its worth; and the methods of observation by which Clinical Medicine has grown in the past will continue to be its chief sources of growth. The keen eye, the trained ear, the cultured touch, the collation of symptoms, the correct reasoning, the skilful adaptation of means to cure, will be the same in method; though new ways of obtaining more complete knowledge by the so-called instruments of precision, by the thermometer, by the sphygmograph, by the spectroscope, and, perhaps, by other instruments embodying physical discoveries of the day which have not been as yet adequately used in Medicine, such as the telephone, the microphone and the phonograph, will be more and more fully tested.

The great advance of our times is in therapeutics, partly through the results of suggestive experiment, partly by the more accurate appreciation of the action of drugs on the economy. Still, as in the past, clinical expepience, must be the final test of the value of remedies. Yet it is certain that the scientific methods now employed, will result in therapeutics simpler, and more effective in their simplicity. In the near present, treatment will discard haphazard combinations, and aim at producing results with singe remedies, or with remedies so adjusted that their combination brings out the full strength of the one most depended on, and reduces power in directions we do not wish it exerted, as witnessed, for instance, in combining belladonna or the bromides with opium. Again local treatment is likely to be more and more resorted to. Will this make of Medicine a mathematical science? Will it make the successful physician simply an accomplished physicist? Vain thought. Indeed, the methods, even those the outcome of the most conclusive experimental science and of the most perfect mechanical treatment, must ever take cognizance that in treating the sick we are dealing with the man in disease, quite as much as the disease in the man. However more exact our means, however larger our resources, the personal something in the sick the personal something in the physician will never cease to have their power. And the greatest success will always be with the greatest measure of tact, with the quickest appreciation of vital strength, with the magnetic influence which instills confidence and trust with the fullest inspiration of hope, as well as with the courage that knows when to take risks and with the wisdom that knows when to rest.

*Percy Frankland. The Nineteenth Century. August, 1887.

A great deal of the improvement in Medicine, especially in therapeutics, is due to the knowledge that many diseases are self-limited, and to the appreciation of the course they run uninfluenced by medical means. This study of the natural history of disease is invaluable; and giving us, as it does, a standard, it enables us to correct the claimed importance of special agencies, and to estimate at their true worth the vaunted cures of exclusive systems. It was through it that the protest of Young Physic against excessive and violent meditation became effective. It was through it we began to comprehend the power of Nature. But it has done its work largely; and we must not stand still in that work. Young Physic has become middle-aged, and with its years has thrown off some of its youthful eccentricities. To go on now insisting on the supreme powers of unaided Nature, is to be as much behind the times as to continue in the constant use of disturbing, potential remedies, which the phase of medical inquiry alluded to did so much to discredit. Medicine has advanced, and has given us proved agents, alike for cure and for relief. In the near present the pandering to the belief many of the public still hold so dear, that Nature is all-powerful, that Nature must not be interfered with, will be looked upon as a sign of a weak, not of a sagacious mind. Those who seek counsel will rightly turn to him who knows the limits, while he believes in the resources of his art, and uses that art boldly; and not to him who sits down simply to see what Nature will do, and tries to throw the cloak of a philosopher over the shortcomings of a sluggard. New Medicine condemns these posers as much as the Old Medicine they condemn.

We hear much of what Nature will do without assistance. Will she enable a man to walk with a broken leg? How often does she remove pus from the cavity of the chest? Will she arrest a peritonitis, or keep a perforated intestine quiet as efficiently as opium? Will she check the fierce onset of malaria like quinine; rally a faint heart like digitalis; or quiet the sleeplessness about to end in fatal exhaustion like chloral? Let us stop the prating about the unlimited power of Nature, and of not interfering with her processes. The same Providence that gave the power is daily letting us find more and more means to help it, when weakened; to repair it, when stricken. It may be in individual maladies still the best course not to attempt radical interference, since the measures to overcome them have not been as yet discovered. It is often impossible with our present knowledge to do otherwise than to husband strength and to allay disturbing symptoms. Each generation will re-examine and determine for itself, in the light of new helps, its influence over particular affections. A generation that has witnessed the introduction of the hypodermic syringe, of the bromides, of chloral, of nitroglycerine, of cocaine, of antiseptics, need not despair of gaining more agents potent for control.

We are in an era in which surgery is becoming the adjunct of medical therapeutics, or acting where medicine cannot act. How far this is to go, time alone can determine. Before many years what can be safely attempted, and what can not, will be fully known. But from the mode of procedure good has come. The history of intestinal obstructions and of peritoneal abscesses is the history of ever advancing success. Extirpation of brain tumours shows alike the increased skill in the recognition of disease and in its treatment. The indications for tapping the chest and the pericardium are becoming better and better defined. The removal of growths in the larynx cures cases beyond the reach of medicine. The extirpation of enormous diseased spleens has been in some instances successful. There is, of course, risk that the daring efforts and glowing anticipations of surgeons may lead to attempts which can not possibly succeed. But the method is a method of advance; a method to be used when medical art fails. As internal therapeutics grow in resources, let us hope that the instances of employing surgical means will become fewer. Yet in the near present they will be used, and, assisted by the new and growing surgery of antiseptics, with probably increased ease and surer results.

The practice of the times we are approaching will then be simple, accurate, decided. The leading men of the day show these traits strongly. It will still require on the part of all much labor to attain to this simplicity, this accuracy, this decision. It will require continuous work to sustain it; and, with these methods predominant, many a type, many a familiar figure, will be seen no more. How well I remember some of these dear old acquaintances of my earlier professional days. One in particular, may his kindly soul pardon me that I hold him up to view at all, delightful, chatty, lovingly patting all the children on the head, neat in dress, with a white cravat, a work of art in its way, knowing the last news, indulging decorously in humor that offended nobody, the friend and the trusted practitioner of a large neighborhood. And on the score of simplicity his methods left certainly nothing to be desired. He did not trouble himself with new means of investigation. He had conveniently divided for himself all diseases into three groups, those of the head, those above the diaphragm, those below the diaphragm. Further than this it seemed useless bother and mere refinement of diagnosis to go. Why should he? This plan answered and was sufficient for an opinion. Did you ask him, What it might be above the diaphragm that seemed wrong? a look as near to scorn as so amiable and wise a person could assume, would warn you not to try to fathom the unfathomable. And the treatment was delightfully plain. For the head, ice cloths and purgatives; above the diaphragm, either digitalis, if more particularly the heart was to be influenced, or ipecac for the lungs; below the diaphragm, for the liver and other structures, calomel, for painful affections, opium.

Good old gentleman, he died much beloved and regretted; and it is well he is not here to be worried by the present generation, who will use test-tubes, thermometers, the stethoscope; who like to apply medicine on some scientific basis; who are striving to find out new facts, new methods; and who would have sorely distressed his easy, pleasant life. But in the interests of our own honor, in the cause of the welfare of mankind, let us thank Heaven that with all his personal charms, all his virtues, the keen appreciation of different ways, now, makes him and his kind forevermore impossible.

In justice, I cannot leave my subject without taking some notice of what the position of Medical Instruction is to be, to keep pace with the improved methods to which we are attaining. It would lead me far beyond my limits to examine this question in detail; but it is evident that medical teaching must conform to the spirit and aims of the developing science. It will lay more and more stress on laboratory work, on bedside instruction, on clinical exercises, on personal training. It will do more and more, what I believe this College was the first, certainly in this country, to do, aim at breaking up the class into small sections for special instruction, so that every one may have the opportunity to learn for himself under skilled supervision. It will, as studies advance, encourage to thoughtful, independent work with scalpel and in the laboratory; that kind of work which caused Soemmering, while a medical student, to earn from famed anatomists, like Camper and Monro, enthusiastic praises for his researches on the nerves at the base of the brain; the kind of work which Black at the age of twenty-four announced in his graduation thesis, revolutionizing chemistry and paving the way for the great contributions of Lavoisier; the kind of work which led Koller but a year or two years since to discover the properties of cocaine; the kind of work which, I say it with feelings of just pride, is about to bear fruit in the publication of a volume of original essays on remedies of indigenous growth, containing a number of the investigations of our students in the laboratory of the Professor of Therapeutics. Progress in medical instruction will lop off many unnecessary studies, followed more particularly in some of the schools of Continental Europe, and having only a remote connection with medicine. It will require of all who engage in professional study mental

training; but it will not too narrowly specify the kind of training, allowing the broadest limits in proof of mental aptitude. It will aim quite as much at educating in the methods of work as at mere supply of knowledge. It will lead to freedom of study; stop the wearying system of constant, so-called progressive examinations, which are regarded as tests of fitness to pass from one branch to the other; and will make one examination, the final one, sufficient, no matter when or how the knowledge has been acquired.

Will advancing methods in teaching dispense with lectures? "Lectures, sir," said Dr. Johnson, "what man would go to hear that imperfectly at a lecture which he can read at leisure in a book?" Lectures of the kind referred to, mere recital without demonstration, enlightened instruction will forego. It will insist upon lectures which are not simply what can be read, upon those which address the eye as well as the ear, upon teachers that are not mere talkers, and if one of this class be found in position, public opinion will call for his removal.

One thing the near present is certain to do: it will demand, that which in this country is the greatest want, a longer time of professional study. This time has been always short; it is becoming more inadequate every year. I know the terrible pressure of the necessity for speedy exertion on those wholly dependant on that exertion. I know the temptations, the desires to be active among the active, striving among the striving, felt all the more keenly in a country so visibly developing everywhere as the result of energetic effort. But I also know the frightful responsibilities of professional life; I think of the bitter self-accusation which comes as the want of full knowledge is felt, of the errors which knowledge gained avoids, of the grateful success it leads to,—and then I am sure that no matter what circumstances seem now to beckon on, in the long run the fullest preparation will be the best for happy life, for worldly success, for conscience.

When the drawback of insufficient time for medical studies is removed, when a broader foundation can be laid at the Medical Colleges, there will be with us a very bright future for the practice of Medicine. Listen to the statement of one of the most renowned professors in the largest Medical University in Europe, of Billroth in Vienna. What does he in a recent essay* on the state of medical education most bewail? Not an inadequate length of study, not want of learning, but lack of independence of character and energy in the student, blaming the influences of his home life for having caused it. The student is but the practitioner; his traits go with him. What advantage then have you in your very surroundings; what potent influence in the institutions under which you live; what help in, perhaps, the hard circumstances some of you most deplore. They all develop character, self-reliance, love of action; they teach adaptability and the prompt application of knowledge. They give available power; and available power is, for the practical duties of our art, better than great talents, or even than great learning. "Crafty men contemn studies, simple mén admire them, and wise men use them," says Bacon. And if to the national characteristic of adapting knowledge readily and using it decidedly, a longer and more complete training is joined, our practitioners may with confidence enter into competition for the palm of Medicine between nations.

My friends: You have enrolled yourself in the great army of workers that is marching in solid column into the Near Present. On cherished bannér borne aloft are inscribed in golden letters the five great medical achievements of a century of active exertion; Vaccination, Auscultation, Anæsthetics, Hypodermic Medication, Thermometry. They present the brilliant victories of peace; the conquest of rich domains of helpful science. Before long the record of more of these victories and conquests must be seen on the silken folds. The veterans who caused them to be placed there are watching the old flag with expectation. May it be that a spirit of independent inquiry and research shall in time lead some of you to add a sixth and a seventh golden line!

*Aphorismen zum Lehren und Lernen der medicinischen Wissenschäften. 1886.

ON THE ETIOLOGY OF PHTHISIS.

BY R. W. PHILIP, M.D., F.R.C.P.E.,
OF EDINBURGH, SCOTLAND.

(Continued from Page 10.)

After approaching the subject in a variety of ways, with a remarkable constancy of results, I thought it best to institute a series of experiments with extracts obtained from different phthisical sputa, by such methods as could be least open to objection in respect of complications introduced from without.

(*Method.*)—The sputum was carefully collected in a clean vessel, preferably a closed jar with central hole for the entrance of the expectorated material, such as are used in some of the Edinburgh Royal Infirmary wards. In the selection of the patient the greatest care was exercised: (*a.*) Only such cases were made use of as showed undoubted signs of advancing phthisis. (*b.*) No case was accepted where the temperature chart did not record a more or less persistent elevation. (*c.*) After the first two or three examinations, it was found best to restrict the selection to subjects where possible impurities from smoking were absent.

Similar care was taken in the selection of the sputum: (*a.*) The sputum was rejected when any foreign admixture was present, such as vomited materials. (*b.*) It was rejected when saliva was present in appreciable amount. (*c.*) The reaction of the sputum was tested, and only such admitted as gave an acid or neutral reaction. This last condition was found always associated with a peculiar odor, which may be regarded as *sui generis*. (*d.*) The presence and approximately the relative abundance of the tubercle bacillus was in every instance ascertained.

The sputum, thus carefully collected for twelve or twenty-four hours, is at once subjected to further examination. Its bulk is measured, and three volumes of rectified spirits are added to it. The mixing process is carried out *guttatim*, so that the operation of the elements of the sputum may be rendered complete and the admixture made as intimate as possible. If the sputum be neutral or but faintly acid, a trace of tartaric acid is added to the rectified spirits previous to mixing. The whole is transferred to a Florence flask. Its mouth having been protected by a fine muslin rag, the flask is placed in a Koch's steam sterilizer and exposed to a gentle moist temperature of 36°–40° C. for 20–24 hours. At the end of this time the fluid is carefully filtered, first once or twice through fine muslin, and then three or four times through filter paper, till the filtrate runs off perfectly clear. Its volume is then measured and the whole evaporated down in open beakers to $\frac{1}{15}$ of its bulk (*circa*). This reduces it to the consistence of a more or less muddy extract, varying in color according to that of the original sputum. The latter part of the process is conducted slowly, with the view of driving off all remaining trace of spirits and to prevent the escape of other volatile products. The extract thus obtained was utilized for injection.

With regard to its constitution, it must be observed that it is as pure an extract as can well be obtained of the carefully selected sputum. The only additions made are measured quantities of faintly acidulated rectified spirits. This, in the process of slow evaporation to $\frac{1}{15}$ its original volume, was presumably entirely given off; so that in observing the results we have to deal with the effects of a fairly purified extract of phthisical sputum, *i. e.*, sputum minus the coagulable elements, separated out by the addition of the rectified spirits and the after process of filtration.

It should be further mentioned that the extract when properly prepared is most unstable; and, being extremely liable to the attack of fungi, breaks down in the course of a few days, giving rise to new products. The extract was, therefore, never used for experimental purposes after it had been prepared for three or four days.

Four series of experiments were conducted with the extract so obtained:

1. To observe its effects on the system generally.

2. To observe its effects on the circulation; *i. e.*, on the cardiac rate.

3. To test the antagonistic effects of certain drugs, especially atropine as regards the system generally.

4. To test these antagonistic effects

as seen more especially in the cardiac rate.

It is impossible here to give details of the numerous experiments conducted under these heads, but the general results may be summarized.

Series 1:

A. — *On frogs.* — Thirteen experiments carried out with varying quantities, and under a variety of conditions, yield results of striking uniformity; and point to the presence in the extract of a toxic principle, or of toxic principles, of considerable potency. The results differ only in degree, a progressive increase in the intensity of the symptoms being observable with the increased dosage. The general line of symptoms is that of the gradual development of voluntary motor depression. In no instance was a stage of excitement traceable. This condition of depression appears, in part, explicable by a toxic influence exerted on the higher centers. This is evidenced by the general character of the depression, by the sluggish nature of the movements while coordination remains little affected, and by contraction of the pupils. The spinal cord appears to be unaffected, the reflexes remaining normal throughout in the less severe cases, and in the graver being unaffected till later on.

B.—*On mammalia.*—In mice, it was found possible to induce distinct symptoms with 3cc. of the extract. These symptoms resembled, in general character, those observed in the frog, and passed off gradually in the course of an hour or two. With increased injection, the intensity and duration of the symptoms were correspondingly increased. As in the frog, the scope of the symptoms suggested implication more especially of the higher centers. There was the same early appearance of gradually advancing depression. This, as before, was not preceded by any trace of excitation. In the course of ten minutes the animal invariably became quieter, the stage of quiescence passing on to more or less complete passivity and disinclination for movement, according to the amount injected. In the lighter cases, this was gradually recovered from. In the more severe cases, it deepened into death, or death followed after more or less complete approach towards recovery. In addition to these symptoms, common to frogs and mice, certain well marked phenomena were observed. Among the more striking of these should be noted fibrillary twitching of the surface of the body, and convulsive movements of the trunk and limbs. Regarding changes in the respiration, it has to be borne in mind that the estimation of the rate of breathing is always difficult in mice. The general impression, however, was, that after the preliminary excitement, there remained a certain increase in the respiratory rate, to be followed later, when symptoms were sufficiently prolonged, by retardation. In those animals which died after prolonged symptoms, anorexia was a conspicuous feature, while water was drunk freely.

In rabbits, comparatively large quantities of the extract were required to produce urgent symptoms. On economic grounds this line of experimentation was less systematically carried out. So far as they go, the results obtained were in strict accord with those just detailed. Of greater interest, however, in the case of the rabbit, was the effect of daily repeated small doses. Thus, for example, two rabbits were fed on measured quantities of oats and water, and their weights registered for some days, until the daily register became fairly constant. The same conditions were continued, with the addition that once in the twenty-four hours each animal received subcutaneously small injections of the extract. Presumably as a result of this, their weights progressively decreased by amounts varying from one-fourth ounce up to one ounce *per diem*, and the amount of food consumed was reduced to one-half, and on one occasion to one-quarter, of the amount previously consumed in the corresponding time. After some days, the system appeared to grow more tolerant of the morbid material, as it was found necessary to increase the dose to produce the same effect. At the end of ten days, the injections were discontinued; and the weights, without increasing, remained almost constant for a week or two. Then a gradual progression downwards, apart from fresh injection, was observed, each animal

continuing to lose a fraction of an ounce daily, until death. It appears likely that the early loss of weight was due directly to the action of the morbid product, which doubtless led to loss of appetite, etc. This is evidenced by the daily loss of weight, corresponding with the dates of injection and by return to a more constant condition, when the injections were stopped. The later progressive loss of weight, apart from injection, is more difficult of explanation. We may suppose that following the earlier injections a condition of marasmus developed. In neither of the rabbits was there found on *post mortem* examination, the slightest trace of caseation to which rabbits are prone.

Series 2. Effects on the circulation, *i. e.*, on the cardiac rate. A considerable number of experiments were conducted under this head. They prove conclusively the presence of a powerful cardiac depressant. In each instance the fall is striking. Where large doses were used it was remarkable, the cardiac rate being reduced under the influence of the extract from 44 per minute to 18, and even 14 in the course of four hours. Coincident with the decrease in weight, a marked lengthening of the diastolic in relation to the systolic phase was evident. These results, taken along with those of Series 4 (*infra*) imply, I think, that the depressed action on the heart is produced through the medium of the inhibitory fibres, and not by direct action on the cardiac ganglia.

Series 3 and 4. It is convenient in this brief summary to combine the results obtained in Series 3 and 4. In each it was endeavored to neutralize the ascertained depressant effects of the extract, by the exhibition of presumably antagonistic drugs. For the present I limit myself to the results obtained with atropine. The double series yield results in remarkable consonance with those obtained in the earlier series. In the first place, they afford strong corroborative evidence as to both the general systemic and the special cardiac effects of the extract. But, in the second place, they prove that the combined exhibition of atropine undoubtedly modifies these results in a striking manner. Of this there is evidence in all the experiments, the degree to which such modification is produced varying with the relative quantity of the antagonistic principle. Most perfect antagonism was produced by the combined injection of $\frac{1}{60}$ milligramme sulphate of atropine with .6cc extract. Under such conditions the general systemic effects, easily produced both in frogs and in mice, by .6cc extract, were almost completely absent while the cardiac rate, which .6cc sufficed to depress considerably, remained practically constant. The effects were similar, whether the atropine were exhibited simultaneously with the extracts or at varying intervals before or after. The antagonizing influence of atropine is most strikingly demonstrated in those experiments, where the injection of the extract preceded that of the atropine by a measured interval of time. In such cases the effects of the extract were first of all well defined, and gradually declined on the addition of the atropine. Similar results, though less striking, were obtained when the atropine preceded the extract. It should be added that, in every instance where counter experiments were made with atropine, the extract was first tested, with the view of establishing its physiological action.

This experimental record is necessarily too brief, and doubtless is open to much criticism. But the results at my disposal, which I hope to publish in more extended form, appear to me to justify the statement that from the tubercular sputum there is separable one or more products possessed of well marked toxic properties, these toxic properties being more or less completely opposed by atropine.

The remaining question is, in how far this poisonous principle is dependent on the presence of the bacillus. Might not such toxic effects be produced by extracts obtained from other sputa besides those strictly bacillar? There is, unfortunately, no time to give in full the grounds for my statement; and I must content myself with stating categorically my belief, formed on experimental grounds, that the presence of the bacilli is causally related to the poisonous product obtained from the sputum. I incline also, for similar

reasons, to the belief that there is a relation traceable between the toxicity of the extract and the abundance of the bacillar elements discoverable in the sputum.

On the line of absorption and the therapeutic indications, regarding which I had proposed speaking, I must not dwell. But it may be convenient, in closing, to tabulate shortly the chief points which have been briefly discussed.

THE FOLLOWING TABULAR STATEMENT EXHIBITS THE CONDENSED RECORD OF EXPERIMENTS UNDERTAKEN IN THE COURSE OF PREPARATION OF THIS PAPER, AND SHOW IN A STRIKING MANNER THE EFFECTS UPON THE CIRCULATION OF INJECTIONS MADE WITH EXTRACT FROM PHTHISICAL SPUTUM, BOTH ALONE AND WHEN ADMINISTERED IN COMBINATION WITH ATROPINE.

SERIES 3°.—Effects of Extract on Circulation, i. e., on Cardiac Rate.

EXPERIMENT XXIII.

(CONDENSED RECORD.)

Injection of .9 cc. prepared Extract into posterior lymph sac of medium-sized healthy Frog (R. temp.) Temp. of room—15·5° C. Heart rate—46 per minute.

TIME.	RATE.	REMARKS.
P.M.		
12.15	46	
*12.20	46	
12.25	49	
12.30	48	
12.35	46	
12.40	44	
12.45	42	
12.55	42	
12.57	36	Diastole lengthened in proportion to systole.
1.3	28	
1.10	22	
1.15	21	
1.30	21	
1.35	20	Diastole still longer.
2.0	20	
2.10	19	
2.40	19	
3.0	18	
4.0	14	Killed in moribund state.
5.30	14	

*Injection of extract

EXPERIMENT XXVII.

(CONDENSED RECORD.)

Injection of .6 cc. prepared Extract into posterior lymph sac of medium-sized healthy Frog (R. temp.) Temp. of room—10·5 C. Pulse rate—30 per minute.

TIME.	RATE.	REMARKS.
A.M.		
11.0	30	
*11.2	30	
11.5	31	
11.7	31	
11.10	29	
11.15	28	
11.25	28	Diastole lengthening.
11.30	26	
11.35	26	
11.40	25	
11.50	24	
11.55	23	Experiment discontinued.
12.5	23	

*Injection made.

EXPERIMENT XXVIII.

(CONDENSED RECORD.)

Injection of .3 cc. prepared extract into posterior lymph sac of medium-sized healthy Frog (R. temp.). Temp. of room—10·5 C. Heart rate—28 per minute.

TIME.	RATE.	REMARKS.
A.M.		
11.0	28	
*11.5	28	
11.8	29	
11.15	29	
11.20	28	
11.25	27	
11.30	26	Lengthening of diastole.
11.40	25	
11.45	24	
11.55	24	
12.0	25	
12.10	26	Frog beginning to grow restless.
12.20	27	Effects appear to be passing off.
12.30	27	

*Injection made.

SERIES 4°.—Effects of Extract on Circulation opposed by Atropine.

EXPERIMENT XXXVIII.

(CONDENSED REPORT.)

Injection of .6 cc. prepared Extract plus 1-66 milligramme Atropine Sulphate into posterior lymph sac of large lively Frog (R. temp.). Temp. of room—15·5° C. Heart rate—44 per minute.

TIME.	RATE.	REMARKS.
P.M.		
12.35	44	
*12.40	44	
12.45	44	
12.53	48	
12.55	46	
1.0	46	
1.8	44	
1.15	42	
1.25	43	
1.35	43	
1.45	42	
2.0	42	
2.5	40	Frequent struggling.
2.10	39	
2.20	39	
2.30	39	No marked change in diastole.
2.40	39	
2.50	39	
3.0	39	
3.15	39	Struggling frequent.
3.45	39	

* Injection made.

EXPERIMENT XLII.

(CONDENSED REPORT.)

Injection of .6 cc. prepared extract into posterior lymph sac of medium-sized healthy Frog (R. temp.), followed in 35 minutes by injection of 1-66 milligramme Atropine Sulphate. Tem. of room—13·5° C. Heart rate—34 per minute.

TIME.	RATE.	REMARKS.
A.M.		
11.0	34	
*11.5	34	
11.10	35	
11.15	33	
11.20	32	
11.25	31	
11.30	29	Evident signs of depression: diastole lengthening.
11.35	28	
†11.40	28-27	
11.45	30	
11.50	33	
11.55	32	
P.M.		
12.10	31	Struggling frequently.
12.20	31	
12.30	32	
12.40	32	
1.10	33	
1.20	34	

* Injection of Extract
† Injection of Atropine.

EXPERIMENT XLI.

(CONDENSED REPORT.)

Injection of 1-66 milligrammme Atropine Sulphate into posterior lymph sac of medium-sized healthy Frog (R. Temp.), followed in 25 minutes by the injection of .6 cc. prepared Extract. Temp. of room—14° C. Heart rate—34 per minute.

TIME.	RATE.	REMARKS.
P.M.		
12.40	34	
*12.45	34	
12.50	34	
12.55	34	
1.0	34-35	Struggling.
†1.5	34	
1.10	33	
1.15	34	
1.20	34	
1.30	34	
1.40	34	
1.45	33	
1.55	33	
2.0	33	
2.10	33	
2.15	33	

* Injection of Atropine.
† Injection of Extract.

CONCLUSIONS.

(1.) In view of the work of Koch, it is impossible to avoid admitting that a causal relationship exists between the tubercle bacillus and the phthisical process.

(2.) The mere predication of this relationship is not sufficient in explanation of the clinical facts and the generally fatal termination of such cases.

(3.) The usually received explanations of the *modus moriendi* in phthisis are insufficient.

(4.) It appears probable that the lethal influence of the bacillus is due to the production thereby of certain poisonous products.

(5.) Clinical and experimental evidence appear to indicate that the morbid secretions from the respiratory surfaces afford a good medium for the growth of the tubercle bacillus and, presumably, for the elaboration of such products.

(6.) Such a product is separable from the carefully selected and prepared sputum.

(7.) This product is possessed of well-marked physiological properties, being eminently toxic to frogs, mice and other animals.

(8.) The toxic properties of the product are, speaking generally, depressant.

(9.) More particularly they include a marked depressant influence on the heart.

(10.) This depressant influence seems to be exerted through the medium of cardio-inhibitory mechanism.

(11.) The toxic action of the product is more or less completely opposed by atropine.

(12.) The amount of the product which may be separated appears to bear a distinct relation to the abundance of the bacillar elements present.

(13.) Absorption of the poisonous product most probably occurs by way of the lymphatic circulation.

NOTE ON ANTIPYRIN IN THE TREATMENT OF SCIATICA.

BY J. C. WILSON, M. D.,

Visiting Physician to the Philadelphia Hospital and to the Jefferson Hospital.

I have recently used antipyrin in three cases of sciatica with gratifying success. This drug is rapidly taking position in the foremost rank of our agents for the relief of various painful disorders. In fact, its action in certain painful nervous affections is quite as striking as, and decidedly more curative than, its action in fever. The prompt relief often following its use in migraine and other forms of nervous headache, in the pains of tabes, in diffused and localized neuritis, and in dysmenorrhœa, is already widely known among the profession, and its judicious use in these affections has prevented much habitual suffering. I am among those in whose hands it has not proved as successful as other remedies in the treatment of acute articular rheumatism. But in some other painful affections of the joints, especially in the acute inflammatory outbreaks of rheumatoid arthritis, and in the paroxysms of gout, its administration, whether by the mouth or hypodermically, has been followed by prompt and signal relief of pain. In a single case of distressing neuralgia of the rectum, fifteen grains of antipyrin by enema in warm water were followed by relief of pain and by sleep, and two repetitions of the dose in the course of thirty hours brought the attack to an end. I have used antipyrin, in accordance with the suggestion of Sonnenberg, in whooping-cough with positive benefit in decreasing the number and violence of the paroxysms, and the duration of the attack. From its use in whooping-cough to its use in the distressing symptoms of "hay-fever," especially the asthmatic form, is a natural suggestion, upon which I have acted during the past few weeks. In several cases the relief, though temporary, has been prompt and effectual. I have used it in hay fever internally and as a spray (gr. xx–xl to the fluid ounce of water).

The following cases of sciatica may appear less striking to others than to the writer. They are published in brief as examples of the curative action of antipyrin in this disease, and as a contribution to the general fund of accumulated experience by which alone the indications and contradictions for its use may be made plain.

Case I.—M. S., female, unmarried, æt. 29, obliged to work hard as housekeeper, no family or personal history of rheumatism or gout, has suffered

occasionally with trifacial neuralgia, is anæmic, but has regarded her general health as fair; was suddenly seized, June 23d, 1887, with severe pain in back of left thigh, preventing walking and rendering all movement distressing. For three days she was treated by Dover's powder, rest in bed and applications of dry heat, a saline cathartic having been first administered. I saw her on the morning of the fourth day. She was still suffering great pain on every effort to move, and was worn out by loss of sleep. There was tenderness over the course of the sciatic nerve, much increased at the sciatic notch, in the popliteal space and below the head of the fibula. There was no elevation of temperature. A dose of fifteen grains of antipyrin by the mouth was followed by free sweating, considerable relief of pain and a sleep lasting three hours, from which the patient awoke refreshed and hungry. On the same evening the dose was repeated, with similar effect. On the following morning she could turn in bed, a feat not previously possible since the attack began. After some hours, the pain becoming worse, ten grains of antipyrin were given, with the result of moderate sweating and almost complete relief of pain. This dose was repeated from time to time as the pain recurred, at first three, then two doses daily, until pain wholly ceased. On the third day of this treatment the patient was allowed to sit up; on the fourth, to walk about her room; and on the fifth, regarding herself as well, she resumed her household duties.

She was ordered to take a pill of arsenic and iron for some weeks.

On three occasions since June she has had attacks of sciatica, beginning with the same suddenness and intensity. The ten-grain doses of antipyrin have brought these attacks to an end in from twenty-four to thirty-six hours.

Case II.—A medical man æt. 40. Mother suffered with acute articular rheumatism in her youth and from joint pains, on taking cold, all her life. Father has had one or two attacks of sub-acute gout; patient himself has had at least one sub-acute outbreak of gout, and is prone to neuralgia of the face and scalp; health otherwise good. After being obliged to walk several miles in wet clothing, August 31, 1887, felt pain and stiffness in his left knee. The next day was somewhat lame and walked with difficulty; nevertheless, he started on a journey of two days to his home. The night after reaching home he awakened from sleep with excruciating pain in his left hip, thigh and knee. Slight transient relief resulted from taking a quarter of a grain of morphine, but no sleep. In the morning the case presented every symptom of an acute attack of intense sciatica, severe spontaneous pain, aggravated beyond endurance by movement; exquisite tenderness over the nerve-trunk, a temperature of 100.5° F. Blistering collodion was applied over the course of the nerve from the hip to near the bend of the knee over a surface two inches wide, and ten-grain doses of antipyrin were given whenever required to relieve suffering. Five doses were given during the succeeding twenty-four hours, each being followed by sweating, a great sense of ease and such relief as made change of position in bed possible. The next day only two doses of antipyrin were taken. The temperature fell to normal, and the bowels were relieved by a saline. In all, seventy grains of antipyrin completed the cure. On the morning of the third day the patient limped down stairs and saw patients in his office. The leg was sore and stiff, the blister uncomfortable and the patient felt very weak. No other medicines were taken except six grains of muriate of quinine daily for a week. In five days from the acute onset, seven days from the beginning of pain in the knee, recovery was complete.

Case III.—A lady, 60 years old, in good health, who had never had rheumatism, was caught in a violent storm and drenched. The following day she had severe pains in the right leg from a point about the middle of the back of the thigh to her foot in the course of the distribution of sciatic nerve. She was able to walk to the house of a physician, who prescribed potassium bromide and potassium salicylate, each fifteen grains, every third or fourth hour. At the end of a week the pain had become so aggravated that she was

unable to walk. I prescribed antipyrin in ten-grain doses to be repeated whenever a severe paroxysm of pain reoccurred. This treatment caused remissions of pain which gradually increased in duration, and was followed by its complete cessation in five days. Ninety grains of antipyrin in all were taken. Some stiffness and weakness remain, but their symptoms are improving under rest and massage.

The foregoing cases were all first attacks, and the first two were of great severity. The immediate relief from pain following the dose of antipyrin was almost as great as I have seen after hypodermic injections of morphine or chloroform; the remissions were as prolonged and the course of the attack far shorter than usual under similar treatment. The best plan of administration in cases of neuralgia, neuritis and other painful affections is to give the dose upon the recurrence of exacerbations of pain rather than at stated intervals. This plan was long since found the best in treating sciatica by analgesics, as hypodermic injections of morphine. Antipyrin in doses not exceeding fifteen grains is well-borne by the stomach, and may be given without fear of endangering the digestion for several days consecutively. The chief contra-indication is feebleness of the circulation. I have seen alarming prostration promptly follow the administration of five grains, in a very fat woman with feeble heart walls.

A PRELIMINARY REPORT OF EXPERIMENTAL RESEARCHES CONCERNING THE INFECTIOUS NATURE OF TRAUMATIC TETANUS.

BY EDWARD O. SHAKESPEARE, A.M., M.D.,
Of Philadelphia. Pathologist to the Philadelphia Hospital, etc.

[Read in the Section of Pathology of the Ninth International Medical Congress, September 6th, 1887.]

THE author reported in detail a long series of experiments, which are still in progress, and announced the results already obtained. Upwards of fifty inoculations have already been made. Two methods of inoculation have been employed; intra-cranial inoculations after the method of Pasteur in the case of rabies, and subcutaneous or inter-muscular injections by means of hypodermic syringes.

The inoculations were always made with thorough antiseptic precautions, and with sterilized instruments. In none of the experiments was there any sign of accidental infection, such as suppuration, etc. The material used for inoculation was in general obtained from the medulla or the spinal cord, and cultures in neutral or slightly alkaline flesh-glycerine-agar recommended by Roux for the culture of tubercle bacilli. The tetanus material was taken, under aseptic precautions, from a horse and a mule dead of traumatic tetanus in the veterinary department of the University of Pennsylvania, the brain, medulla and cord being removed one and three hours respectively, post mortem, and immediately kept on ice until used. The inoculation material was usually prepared in the following manner: A small piece of the medulla or cord was thoroughly rubbed up in sterilized distilled water; after the solid particles were allowed for a few minutes to subside to the bottom of the vessel, the opalescent emulsion thus obtained was drawn off by means of sterilized pipettes and placed in small sterilized vials until used, never having been thus kept longer than three hours before inoculation. Eight control experiments were made.

The author concludes his paper as follows:

RESUME OF RESULTS.

1st Series.—Eight rabbits were inoculated sub dura cerebri from a horse dead of tetanus, between August 1st and 18th inclusive. The rabbit inoculated directly from this horse showed the first symptoms of tetanus within 15 hours and died of well-marked tetanus within 48 hours after inoculation. Both the period of incubation and that of death became markedly shortened in continuing the inoculation from rabbit to rabbit.

2d Series.—Four rabbits were inoculated sub dura cerebri from the same medulla of horse. The rabbit inoculated directly from the horse showed the first symptoms of tetanus within 20 hours, and died within 48 hours after. Continuing the inoculation from rabbit to rabbit, the period of incubation

and of death became markedly shortened.

3d Series.—Four rabbits were inoculated sub dura cerebri from the same medulla of horse, after it had been kept on ice a day longer. The rabbit inoculated directly from the horse showed the first symptoms of tetanus within 24 hours and died within 48 hours after inoculation. Continuing the inoculations from rabbit to rabbit, the period of incubation and of death became markedly shortened.

4th Series.—Three rabbits were inoculated sub dura cerebri from the medulla of a mule dead of tetanus, with the same results as in the preceding series.

5th Series.—Seven rabbits were inoculated under the skin and into the muscular tissue of the back, from the medulla of the horse above mentioned. One died within 18 hours and another died within 10 days, but neither of them showed any signs of tetanus. A rabbit inoculated sub dura cerebri from the medulla of the latter on August 15th, is still living and well on September 4th.

6th Series.—A rabbit which had been inoculated under the skin directly from the horse on August 1st, was eight days afterward inoculated sub dura cerebri from the medulla of the last rabbit of the 3d series. It became sick and died promptly of tetanus within the shortened period. A rabbit inoculated sub dura cerebri from its medulla, showed signs of tetanus within 20 hours, but did not die until five days after inoculation.

7th Series.—Six rabbits were inoculated sub dura cerebri from emulsions of spinal cords of rabbits, which had died of tetanus within the shortened period above mentioned. These cords had been treated in a manner similar to that employed by Pasteur for the attenuation of the virus of hydrophobia during periods varying from 3 to 15 days. Five of them died of marked tetanus, the symptoms appearing and death occurring within periods longer than those of the corresponding rabbits from which the medulla had been taken, and usually proportional to the length of time the cord had been drying. One of the six showed doubtful symptoms, but nevertheless very promptly died.

8th Series.—A rabbit was inoculated sub dura cerebri from the medulla of a rabbit which had died after inoculation from the cord which had been fifteen days drying. It showed the first signs of tetanus in 40 hours, and it died of tetanus 7 days after inoculation. A rabbit was inoculated sub dura cerebri from the cord which had been drying 14 days, and it died of tetanus in 20 hours. A rabbit and a cow were inoculated sub dura cerebri from its medulla. The former quickly died of marked tetanus. The latter died, without marked symptoms, within two days, and from the autopsy it seemed probable that injury to the brain had been the cause of death (there had been great difficulty in performing the operation of inoculation). A young rabbit, inoculated sub dura cerebri from this cow's medulla, died within 16 hours, but showed no signs of tetanus; and another rabbit inoculated sub dura cerebri from the medulla of this rabbit, August 27th, is still living and quite well, September 4th, never having shown any signs of illness.

9th Series.—Three rabbits were inoculated sub dura cerebri, September 1st, from spinal cords of tetanus which had been drying respectively 23, 27 and 28 days (these cords were the same as those which had been drying longest, mentioned in the preceding 7th series). The rabbits inoculated from the 23 and 28-day cords showed no signs of illness up to the time of the last observation, September 4th. The one inoculated with the 27-day cord, for the first time showed stiff jaws and difficulty in eating on the afternoon of September 4th.

10th Series.—Three rabbits which had been inoculated under the skin on the 18th of August and had remained perfectly well, were inoculated sub dura cerebri, September 1st, from the same cords mentioned in the 9th series. The rabbit inoculated with the 23-day cord was found dead the next day, but it showed no signs of tetanus either externally or at the autopsy. That of the 28-day cord showed stiff jaws and would not eat, for the first time, on the afternoon of September 4th. That of the 27-day cord showed no sign of

illness up to the last observation, September 4th.

11th Series.—Three rabbits were inoculated sub dura cerebri, August 31st, from cultures started from the horse's brain, August 1st, and renewed once, viz: on August 20th. One of them has remained quite well up to the last observation, September 4th. One remained quite well until September 2d, afternoon, when it showed intermittent trismus and indisposition to eat. This condition continued up to date of last observation, September 4th. One showed for the first time slight signs of tetanus, September 3d, and had them up to date of last observation, September 4th.

12th Series.—A trial attempt was kindly made for me by Dr. L. Wolff, Demonstrator of Medical Chemistry in the Jefferson Medical College, to isolate a ptomaine from the brain medulla and cord of the mule and cow above mentioned. The Stass-Otto method was more or less closely followed. The product obtained from the mule was injected under the skin of the back of two rabbits. They became very ill within twenty minutes, being slightly paralyzed and exceedingly restless, frequently getting down flat on the belly and up again, and jerking the hind legs up, but they showed no marked convulsive movement or trismus. They entirely recovered within six hours. The product obtained from the cow produced but little and only very transient and indefinite results.

NOTE:—Several autopsies of the tetanic animals were made, and they invariably showed intense congestion of the lungs, tracheæ and kidneys. Sometimes there was congestion, oftentimes none at all, of the central cerebro-spinal nervous system. The mucous membrane of the stomach was apparently normal.

Conclusions drawn from the author's personal researches:

1st. Traumatic tetanus of the horse and mule is, at least sometimes, if not always an infectious disease, transmissable to other animals, and therefore possibly also to man; and during the progress of this disease a virus is elaborated and multiplied, which is capable of producing the same infectious disease in some other animals when placed beneath the dura mater of the cerebrum.

2d. This virus is contained in the medulla and spinal marrow of the animal suffering with the disease. It is, like the virus of hydrophobia, capable of being strengthened in virulency by inoculation sub dura cerebri from rabbit to rabbit, and, like the virus of hydrophobia, is capable of attenuation by exposure for a sufficient time to the action of dry air at a temperature of summer-heat, and, still again like the rabic virus, its effects are far more intense when the virus is inserted beneath the dura mater cerebri than when injected beneath the skin or between the muscles of the back.

3d. The author reserves his conclusion concerning a prophylactic effect of inoculation of the attenuated virus until the completion of experiments which are at present in progress.

Conclusions drawn from the author's experiments when correlated with those of Nicolayer, Corle and Ratone, Rosenbach, Ferrari, Flügge, Hochsinger and others:

Traumatic tetanus of the lower animals and of men, at least sometimes, possibly always, is a specific infectious disease due to the action of a specific infectious virus which exists in the tissues at the seat of infection, in the blood and in the central cerebro-spinal nervous system.

In view of experimental evidence which we possess at present, and of many unassailable observations of numerous surgeons and veterinarians, there seems to be ample warrant for the admission that not infrequently tetanus in man is acquired directly and indirectly from some of the domestic animals by which he is surrounded, and notably from the horse.

INTERMITTENT ŒDEMA OF LIPS.—MATAS, in the *N. O. Med. and Surg. Journal*, describes a case of œdema of the lips, in which the swelling made its appearance daily at 8 to 11 A. M., and subsided by 4 P. M.

The surroundings were malarial. Quinine, in full antiperiodic doses, effected a cure. The urine was examined, but no albumen detected.

NOTES OF HOSPITAL PRACTICE.

PHILADELPHIA HOSPITAL.

CLINICAL REMARKS BY WM. OSLER, M. D., Professor of Clinical Medicine in the University of Pennsylvania; one of the Attending Physicians to the Hospital, etc.

[Reported by Wm. H. Morrison, M. D.]

TYPHOID FEVER, CASES ILLUSTRATING RELAPSE AND NERVOUS SYMPTOMS; CIRRHOSIS OF LIVER, LATENCY, FATAL HÆMORRHAGE FROM RUPTURE OF A DILATED ŒSOPHAGEAL VEIN.

Two cases of typhoid fever are shown to the class:

Case I. illustrates an important point in connection with the history of this disease, namely, relapse. She was admitted six weeks ago, and as the temperature chart indicates, had a well-characterized attack of typhoid fever. We cannot distinctly ascertain how long she had been ill previous to admission. When she was brought to the hospital, the chief symptoms were pulmonary. She had a most intense bronchitis, involving especially the smaller tubes. Rales were heard throughout the lungs, and she was cyanosed. We were at first rather in doubt whether we had to do with a simple pulmonary trouble, or with a complication of typhoid fever. The spots, however, soon appeared, and the disease ran a characteristic course. About three weeks ago, her temperature became normal, and remained so for one week. It was then noticed that she was was not so well, and the temperature rose to 102°, and there has been since an evening rise to 103° or 105°, with marked morning remissions.

You must carefully distinguish between a post-typhoid elevation of temperature and a positive relapse, and it is to this point I would especially call your attention. Post-typhoid elevations of temperature occur quite frequently, and may take place within ten days or two weeks after the evening temperature has reached normal. Probably, the most common cause is some indiscretion in diet. A return to solid food is sometimes followed by a slight rise. Sometimes mental excitement or worry will cause it. At times, after allowing the patient to see his friends or to transact business, you will find that the temperature will go up and remain above normal for a few days. In one or two instances, I have seen constipation induce a rise of temperature. In these cases the elevation of temperature is usually the only symptom. There may also be increased frequency of the pulse. The fever, however, is usually transitory, and there are not the well-marked symptoms which characterize the relapse, which, when typical, is a repetition of the primary disease. The temperature rises gradually, and may attain a maximum as great as in the original attack. There is usually abdominal tenderness, often diarrhœa and frequently a re-appearance of the rose-spots. This patient has certainly a relapse which is running a very mild course. The eruption has been well defined, and some spots are still present upon the abdomen. There has been no special abdominal tenderness, and she has had no diarrhœa. She had no recurrence of the bronchitis, but the character of fever and the distinct eruption are sufficient to establish the fact that we are dealing here with a positive relapse, and not simply with a post-typhoid elevation of temperature. There was another interesting feature in this case, namely, that when the relapse occurred she had attacks of epistaxis. The course of the relapse is usually, as I have stated, a repetition of the original attack, but you may meet with many variations. As a rule it is milder, the temperature rarely reaching the same height, and the course of the disease is rarely so prolonged. The majority of cases do well, and a fatal termination is not so common as in the primary attack. In this patient the original attack was mild, and the probability is that she will do well.

Case II.—Of the seven or eight cases of typhoid fever in the wards, this, perhaps, has been the most severe. The patient was admitted to the hospital eight days ago. There is nothing special in his family history, and his personal history is excellent. He was compelled to give up work sixteen days ago. The illness began with stiffness in the neck and soreness over the

eyes. He did not have much pain in the back or the legs. There was pain in the stomach, and the bowels were constipated, and for the relief of this pills were taken and the bowels moved freely. He also suffered with epistaxis, and thirteen days ago was compelled to go to bed.

When admitted to the hospital, the face was flushed, the eyes were bright, and he was quite rational. The temperature was 103.4°, the pulse a little over 100°, not dicrotic, and the respirations were not increased in frequency. Examination of the abdominal and thoracic viscera gave negative results. There was neither diarrhœa nor rash. Since admission the fever has been persistently high. He is now at the end of the second week of the disease. The eruption has been quite characteristic, not copious; the abdominal symptoms have been slight, as in most of the cases this autumn. The abdomen is slightly distended, and the spleen is somewhat enlarged. The most serious symptoms which this patient has presented have been those relating to the nervous system. If you watch him for a few minutes you will see that he is very tremulous. This began early in the case. It is best noted about the face, and when the patient responds to a question you will see that the muscles are quivering. When he protrudes the tongue, it trembles. The muscles of the hands and arms are in a state of jactitation, —subsultus tendinum. This, as a rule, indicates profound involvement of the nervous system. He has had also pretty active delirium. He has attempted to get out of bed, and has had wandering, sleepless condition at night. He has not been in that torpid, heavy, stupid state which is seen in many instances of typhoid fever. The mental condition in the severer cases of the disease is usually one of stupor or semi-coma, or it is one of active delirium. Of the two the semi-comatose condition, as a rule, carries a more favorable prognosis. The active delirium is more serious.

A special condition calling for treatment in this case has been the persistently high temperature. He has been given antifebrin, and it has acted well, reducing the temperature two or three degrees in as many hours. Yesterday the temperature at 8.20 A. M., was 104.4°. He was then given eight grains of antifebrin and the temperature was reduced to 100° by 11.50 A. M. Three days ago, the same dose of antifebrin reduced the temperature from 104° to 100° within three hours. The drug seems to have acted satisfactorily as regards the reduction of temperature, but it has the unfavorable effect, which most of these new antipyretics have and which quinine has not, namely, that they produce profuse sweating, which is most distressing to the patient. The patient after the use of one of these drugs may be drenched with sweats as copious as those of phthisis. I have stopped the antifebrin and have resorted to sponging. This I think will suffice to keep the temperature down. Another symptom which has called for special treatment in this case is cardiac weakness. The pulse has been frequent and feeble, and for this we have given alcohol in repeated and large doses, twelve to fifteen or more ounces in the day, and it has had an influence in quieting the nervous disturbance and also improving somewhat the vigor of the heart's action.

CIRRHOSIS OF THE LIVER.

I have recently shown you two instances of hemorrhage from the stomach in middle-aged men, possibly due to cirrhosis of the liver. Since then I have had several other cases under observation. Two of these cases are quite interesting and illustrate a point on which I wish to speak, namely, the latency of the affection. One-third, possibly one-half, of all cases of cirrhosis of the liver coming under observation in any large hospital are met with for the first time on the post-mortem table. There may have been no special symptoms or the patient has complained of other conditions, and at the autopsy extreme cirrhosis may be found. Of this there have lately been two interesting illustrations. A man was admitted into the drunkards' ward with acute alcoholism and pneumonia and died at the end of twelve hours. He was slightly jaundiced, not more so, however, than is frequently seen in

pneumonia. He had no œdema of the feet and no dropsy of the peritoneum. At the post-mortem we found in addition to the lesions of pneumonia, extreme cirrhosis of the liver. The organ was very irregular, and in the condition of advanced interstitial hepatitis. The man had apparently presented no symptoms of this affection.

The second case was that of a man aged 44, sent from the surgical wards on account of sudden hemorrhage from the stomach. He vomited three or four pints of blood, and died within a few hours after admission to the medical ward. When I saw him he was comatose, and the only thing detected on physical examination was extreme reduction in the area of liver dulness. He had apparently had no symptoms except the dyspepsia which all chronic alcoholics have. At the autopsy we found the following interesting condition:

The body was fairly well nourished; there was a small ulcer on the leg, for which he had been under treatment in the surgical ward. There was no œdema of feet; no fluid in peritoneum. Left lobe of liver two inches below ensiform cartilage. Heart and lungs normal. Stomach did not contain blood (a point of interest as he was stated to have vomited the blood); the mucosa was pale; no erosions. Veins at the cardiac end much dilated. Œsophageal plexus of veins very prominent, and several large branches were directly continuous with those in the stomach. For three-fourths of the tube the submucous veins were dilated. On the posterior wall was a long varicose vein as thick as a small quill, and at one point this presented a greyish white spot, elevated and covered with a thrombus. A small probe passed into the vein came out through this spot, which represented a laceration in the vein, and no doubt from this had come the bleeding.

The liver weighed three pounds; was nodular, tough, and on section showed an advanced grade of cirrhosis; the portal canals were much constricted, and the interlobular connective tissue much increased. The diaphragmatic plexus, the veins of the suspensory ligament, those of the lateral peritoneum, and particularly those over the kidneys were enlarged. The hemorrhoidal vessels were not very much dilated. The vena azygos was large.

In both of these cases the cirrhosis was extreme. The contraction of the ultimate branches of the portal vessels in the liver substance was most marked, and yet there were no symptoms of portal obstruction. The point I desire you to remember is this: that if in any case of cirrhosis the collateral circulation is established, then so long as it is *effectively* maintained, so long will the characteristic symptoms of cirrhosis be absent. There may be no dropsy, no jaundice, and no extreme dyspepsia. In both of these cases the collateral vessels were very distinct. It is chiefly through the diaphragmatic and œsophageal veins and the communication with the mesenteric and lumbar veins and by hemorrhoidal veins that the collateral circulation is maintained. In both cases, the anastomoses of these vessels were extensive enough to prevent engorgement in the portal circulation which is the effective factor in producing dropsy. Dilatation of the œsophageal veins in cirrhosis is a well recognized condition. Communication between the œsophageal and diaphragmatic veins and the union of these with the azygos veins aids materially in carrying off from the stomach, from the spleen and even from the liver itself, a large quantity of blood which under other circumstances would pass through the portal circulation. Rupture of an œsophageal varix is a rare but well recognized mode of death in hepatic cirrhosis.

PRESENTATION TO PROF. HENRY H. SMITH.—A pleasing incident of the late Congress was the presentation to Dr. Henry H. Smith, of Philadelphia, of a handsome onyx vase, highly ornamented, in acknowledgement of his inestimable services as Chairman of the Executive Committee. Dr. Wm. H. Lloyd, of London, presided. Dr. E. A. Wood, of Pittsburgh, made the presentation address and Dr. Jeffrey A. Marston, of the British Army, followed with appropriate remarks.

PHILADELPHIA
MEDICAL TIMES.

PHILADELPHIA, OCT. 15, 1887.

EDITORIAL.

LÆVULOSURIA, OR NON-GLYCOSURIC DIABETES.

In the course of the discussion on Dr. Pavy's paper at the Philadelphia County Medical Society, Dr. Kleen, of Carlsbad, reported an interesting case of lævulosuria. The patient, a lady, 50 years of age, had at times a reducing substance in the urine, which answered to all the tests of glucose, except that it rotated the light to the *left* when examined with the spectroscope. This substance had previously been found in her urine by Prof. Seegen, who pronounced the case one of lævulosuria, and he had found as large a proportion of the substance as three per cent. When seen by Dr. Kleen, it did not appear to be present in larger proportion than one or two parts in a thousand, and for long periods was entirely wanting. It was first observed after a meal consisting largely of sweet fruits, principally pears.

Dr. Kleen makes use of an interesting observation of Worm-Müller in making a diagnosis of glycosuria. This observer has shown that glucose administered in large doses, even in healthy persons, will pass over in small quantity in the urine; while in diabetics the quantity discharged by the kidneys is very much greater after eating glucose. He also noticed that the other varieties of sugar when taken to excess will pass over unchanged into the urine even of healthy persons, while in diabetics at least some portion of them passes into the urine transformed into glucose.

In this circumstance, Worm-Müller believes that he has established a point of difference between persons suffering with real diabetes and those whose urine, while under ordinary diet, presents traces of glucose, or only occasionally responds to the ordinary reagents. This, Dr. Kleen said, had coincided with his own experience. Patients frequently came to him whose urine, especially after alcoholic excesses, or after rich meals consisting largely of starchy food or cane sugar, showed traces of a reducing agent responding to the tests for glucose. In such doubtful cases he usually administers a large dose of cane sugar, and proceeds to test the urine; if he finds no glucose, or only slight traces of it, he considers these cases distinct from true diabetes, though it possibly may indicate a propensity to that disease. In this case of lævulosuria, some portion of the cane sugar passed unchanged into the urine; and a decided dose (gr. 100) of glucose did not produce more than a very slight increase in the amount of the reducing substance in the urine. As she objected to further experimentation, it was not ascertained whether the administration of lævulose by the mouth would increase it or not; this remains for further investigation.

The case was not, strictly speaking, one of true diabetes, but rather belongs to the large group of cases where a small amount of sugar continues in the urine for years in healthy or nearly healthy individuals. In such cases only the excessive use of starchy or saccharine food is to be avoided.

ANTIPYRIN IN NEURALGIA.

WE have used antipyrin in four cases of neuralgic pain, in accordance with Germain Sée's recommendation. In one case of supra-orb-

ital neuralgia instant relief followed the administration of two-grain doses, in hot water, every two hours.

In a case of hemicrania, the seat of most intense pain being in the left temple, the same result ensued. In a recent case of lumbago the relief was sufficient to enable the patient to go out on the second day. But in a severe case of inter-costo-humeral neuralgia, with functional irregularity of the heart, the drug failed, even when increased to five grains. This case lasted six weeks, and then the pain slowly declined, while the patient was taking iron; but we are doubtful if the improvement could be attributed to the latter drug.

We have met no neuralgias so intractable as those affecting the left shoulder and the nerve of Wrisberg. Nitro-glycerine appeared to benefit one case, but on reviewing our notes we find that the attack had continued for six weeks.

The nature of this left-shoulder pain is obscure. It is rare, as we have but three cases in our records. One case was that of a youth; cause unknown. The second was that of a man sixty years of age, with arcus senilis, and other evidences of a life of severe labor and indulgence in alcohol. The third patient was a lady, fifty years of age, with the cardiac disorder above noted. In each case the pain continued without intermission for six weeks, then slowly subsided. The pain was neuralgic, severe, without febrile symptoms somewhat worse every alternate day, yet unaffected by quinine in doses sufficient to produce cinchonism.

In none of these cases could we affirm that the treatment employed had any marked beneficial effect; although the constant current produced a temporary amelioration.

W. F. W.

NOTES FROM SPECIAL CORRESPONDENTS.

LONDON.

THE MONTH OF CONGRESSES—CHRONIC CONCUSSION — PREVENTION OF CONSUMPTION — PAPAINE — SACCHARIN — ASPIRATION OF THE BLADDER THROUGH A CAPILLARY CATHETER—M. PASTEUR ON LORD DONEVAILE'S DEATH —MICROGENESIS IN FOUL AIR—ETC.

This has been a month of Congresses. First in order of time came the British Association meeting at Manchester; then the International Medical Congress at Washington; then the Sanitary Congress held by the Sanitary Institute at Bolton; then the "Red Cross" Congress opened at Karlsruhe on September 22; and now the International Congress of Hygiene and Demography at Vienna, opened on September 26 by the Crown Prince of Austro-Hungary. The sessions of the last-named will be remembered chiefly for the prolonged discussion on cholera, during which Professor Pettenkofer defended the English system of inspection against the continental method of quarantine with brilliant dialectic ability, but without success, for the foreign delegates were not to be convinced. It is, however, something gained that, in an assembly having so much of an official character, one of the chosen orators at the inaugural meeting, and a man of such worldwide reputation as Herr Pettenkofer, should make use of such expressions as these:

"Many physicians and officials still believe that the English are responsible for the cholera coming to Europe from India through the Suez Canal, as for commercial reasons they dislike quarantine and similar measures. This opinion is, however, clearly refuted by the fact that we were frequently visited by the disease before the Suez Canal was opened, and that since that time the epidemic has appeared in many European countries, while Great Britain, which now stands accused and has suffered much through cholera in former times, now remains free of it. Why do the English, in spite of their enormous traffic with India, where the cholera is never extinct, not transfer

the disease to their own country? On looking more closely into the matter, it must be admitted that England's immunity from cholera since 1866 is not caused by quarantines and other expensive obstructions to international traffic, and it is to be hoped that Italy, France, and Spain, as well as Russia, Germany, and Austro-Hungary, will follow England's example."

At the Sanitary Institute Congress several papers possessing a good deal of medical interest were read. Dr. Russell Reynolds, who has long enjoyed a large practice in nervous diseases gave an address on the classification of preventable causes of disease. The two main heads of his classification were (1,) causes inherent in the individual, viz., hereditary constitution, sex, age, and temperament, and (2,) Influences which disturb the balance of income and expenditure. Under the latter head he invited greater attention to the influence of the income and expenditure of the "imponderables" heat, light, and electricity, and then commented on the often repeated physical concession of the body as a whole. "Accidents" show us, he said, what violent concussion may effect in one moment; but daily life points out a more serious danger than accident can be. A great amount of shaking and knocking about may be borne by some with impunity, but there are hundreds, nay, even thousands, who are now steadily, slowly but surely damaging themselves by constant traveling, and especially by railway. Such traveling is often accompanied by hard work, much worry, and exposure to the changes of temperature, which make up what we are pleased to consider as, and call, "our climate." But beside and above all these, the mere recurrence of shaking or "shock" is observable enough. The most prominent effects are irritability of temper, restless fatigue, want of power of application, defective memory, want of confidence, and want of judgment, with insomnia or uneasy sleep, and depression of spirits. The jar of frequently stopping, suburban trains is more commonly and quite as seriously damaging as are the occupations which lead man to travel many hundreds of miles per week. Crying children who will not be rested by a gentle rhythmic movement may be shaken to something like sleep by a vigorous nurse, and so may the busy man who, paper in hand, jumps into a first-class carriage at the end of a day of work and worry, and is concussed into a sort of coma by six or seven minutes of the train. In the early stages of such troubles, some modification of the daily mode of transit may be of service; but when the discomforts have gone to the point of destroying sleep, appetite, and relish for work, nothing but an absolute cessation of the traveling is of the smallest service.

There is another side to the question however and the busy man who spends his day in the ceaseless racket of a city so badly paved and so otherwise dusty and foggy as London, may think the undisturbed sleep in the fresh country air cheaply bought at the cost of half an hour's gentle concussion in a comfortably cushioned railway carriage.

Dr. Ransome, F. R. S., of Manchester, discussed the prevention of consumption in a very able paper before this Congress. The annual mortality in England and Wales is still about 70,000, and Dr. Ransome calculated from this that nearly 200,000 persons are constantly suffering with the disease; yet the rate is distinctly declining, as he showed by statistics from two sources. In England and Wales the annual rate of mortality in the three years, 1858–60, was 2567 per million persons living; in the three years, 1881–83, it was only 1846. In Massachusetts in the year 1857 it was 3950; in 1883 it was 2990. He quoted with approval Louis' dictum that few persons are born necessarily to die of the disease, and maintained that the influence, not only of heredity, but also of climate, exposure to cold, and to irritating dusts had been exaggerated.

As to climate he said it had now been shown to be almost entirely without influence except so far as it permitted or discouraged an almost entirely open air life. Wherever human beings congregated together, in all climates, and in every part of the habitable globe, there is consumption to be found. It

is as Dr. Lombard says "a ubiquitous malady.

As to exposure to cold he quoted the statistics of the British Army. The phthisis that at one time carried off so many of the finest soldiers of the British Army, was not brought on by starvation, or privation, or exposure to hardship. It occurred for the most part when they were not on active service, but in the time of peace, when they were well cared for in every material respect, far better in fact than the half-starved artisans and agricultural laborers, who only died at one third the rate that they did. Again, the poor fishermen of Iceland, and the hunters and trappers of North America, the nomad tribes of Asia and Africa, the wretched natives of Australia, all these people escape the disease almost entirely, whilst half the deaths of the well-protected, well-clothed, adult inhabitants of towns, are from this cause. The Highlanders who inhabit well-built houses on the mainland of Scotland are subject to the same rate as the other inhabitants; whilst the ill-fed, ill-clothed fishermen of the Hebrides, who are of the same race, hardly ever contract the disease.

Mere exposure to cold and wet did not, he contended, ever tend to produce diseases of the lungs of any kind. It has been calculated that in Manchester people die of these complaints at more than three times the rate that they do in breezy Westmoreland. As to irritating dust, he said that it induced a state of the lungs favorable to the reception of the specific organism, in the importance of which Dr. Ransome fully believes on the following grounds: (1) Its almost constant presence in tuberculous cases; (2) Its absence in all other diseases; and (3) the production of the disease by inoculation with pure cultivations of its colonies. While admitting the notable influence of damp soil, he insisted especially on the influence of foul air in dwellings and workshops, and on overcrowding and imperfect ventilation.

Assuming that the most important ingredient of such foul air was the tubercle bacillus, Dr. Ransome pointed out that the theory of direct transference, either by the breath or by dried and pulverized sputum, did not fit all the known facts, especially the influence of dry soil in diminishing the incidence of phthisis. We were yet, he said, far from having a complete knowledge of the natural history of the microbe, and he ventured the hypothesis that it may gain in virulence by a short sojourn outside the body, in the presence of organic compounds favorable to its existence, and contained either in impure air or else in air rendered foul by respiration. In this case the bacillus of tubercle would fall into the same category as the microbes of enteric fever and cholera, and whilst scarcely at all infective from person to person, it would gain the power of reproducing the disease by a sojourn for a shorter or longer time in some medium favorable to its development. If high temperatures are absolutely needed for its existence it might find them in some nook or corner in common kitchens and living rooms inhabited by many of the poor inhabitants of our towns. It is possible that all the components of expired air except the oxygen may take part in sustaining the existence of the microbe. It seems probable, from its continued existence in decomposing fluids, that it is one of those bacilli whose life is fostered by carbonic acid. We can see at once also that aqueous vapors charged with organic matter would be eminently fitted to sustain its existence. The nature of the organic matter contained in the breath is not yet fully ascertained; it is probably partly gaseous and partly solid. It certainly contains numerous solid particles; some simply disintegrated organized material, some dried up epithelial scales, and in some diseases, as in measles and whooping cough and phthisis, the specific organisms of the disease. Its quantity is indeed very small; Dr. Ransome had found that only about 0.2 of a gramme is excreted per diem by healthy adults, or 0.4 gramme per metre of expired air; but this is 500 times as much as Dr. De Chaumont found in the outer air, and when condensed upon solid bodies it often forms a perceptible foully-smelling film, and we know further from Dr. Hammond's experiments that it is virulently poisonous, and it would probably sustain the life of the bacillus.

The measures which he recommended for the prevention of consumption were: 1. As far as possible the disinfection or destruction of the phthisical expectoration; 2. The discouragement of marriage between phthisical individuals; 3. The prevention of irritating dusts in workshops, or, at any rate, the adoption of means for sweeping them away from the mouths of workpeople, as is now most universally done in the workshops of Sheffield; 4. The discouragement of stooping or confined postures during labor; 5. The better drainage of impervious soils; and 6. The provision of thorough ventilation, not only in workshops, offices, warehouses and factories, but also in the dwellings of both rich and poor, and in the streets and crowded alleys in which they live.

Mr. Henry Fenwick strongly recommends papaine in syphilitic ulcers of the tongue and throat, especially when mixed with cocaine. The surface of the ulcers and the white patches in secondary syphilis, rapidly clean and begin to skin over. He has used it in lozenges (papaine, $\frac{1}{8}$ gr; cocaine, $\frac{1}{8}$ gr; potass. bicarb., $\frac{1}{4}$ gr). He has also used it in the following way: Mix papaine with a small quantity of glycerine and water, so as to form a thin paste; add a little bicarbonate of potash, and brush ulcers with the same thrice daily. Papaine is coming into use in the treatment of the dyspepsia in infancy and childhood associated with diarrhœa, with stools containing imperfectly digested food. It would seem that Finkler's preparation is best adapted for this purpose.

Samples of saccharin are at length obtainable in this country; it has, I am told, been for several months obtainable in Germany, but only with the proviso that it should not be exported to England. Saccharin is a coal-tar derivative (benzol sulphuric amide). The samples now obtainable have the appearance of a sallow white powder; it is light and flocculent, and on close examination is seen to be crystallized. When placed on the tongue, no taste is observed for a short interval, as it is rather insoluble in water, 1 in 500 parts being required. Soon, however, its intense sweetness becomes very apparent,—it is said to be 250 times sweeter than sugar,—and this sweet taste persists for some time, only slowly giving way to a slightly bitter after-flavor. Mr. Martindale tells me that it will probably be most convenient to keep it for dispensing purposes in solution in alcohol (4 per cent.). It has a slight acid reaction, and appears to be incompatible with alkalies, a very distinct benzoic flavor being developed. It makes a very elegant preparation with salicin, liq. strychniæ, tinct. nucis vom., and tinct. ferri perchlor., and to a great extent covers their unpleasant flavor. It masks tne nauseous taste of cascara, but is not very successful with quinine. Saccharin is, it is said, not in any way altered in the human organism, upon which it produces no effect, injurious or otherwise, though it has a slight antiseptic action. It is excreted by the kidneys unchanged. It will be found to be of great use to diabetics who retain a taste for sugared food, and I am told that it is already coming into use at Carlsbad for sweetening almond cakes and other similar purposes.

Dr. Ward Cousins recommends the treatment of retention of urine by aspiration through a "capillary catheter" which consists of a filiform bougie and a fine protector, very carefully prepared with woven web and gum elastic, and possessing great flexibility and toughness, together with a smooth and highly polished surface. The combination is about eighteen inches in length, and it can be used for pneumatic aspiration by slipping over it an India-rubber tube connected with a glass bottle, fitted with a two-way cork, and a hand-ball air exhauster. The urethra is first injected with warm oil, and Dr. Ward Cousins says that his slender instrument excites very little straining or spasmodic contraction, and cannot possibly inflict any injury upon the canal. As soon as its progress is arrested, it must be withdrawn two or three inches, rotated between the finger and thumb, and twisted down upon the obstruction. After it has slipped through the stricture it is pushed on into the bladder, which is then evacuated with reasonable rapidity into the aspirating bottle.

M. Pasteur has addressed a letter to

the *British Medical Journal* with reference to the death of Lord Doneraile from hydrophobia. He was bitten by a fox on January 13th, submitted for treatment at the Pasteur Institute in Paris on January 24th, and died on August 25th. M. Pasteur attributes the failure partly to the long interval of eleven days between the date of the bite and the commencement of treatment, and partly to the fault that Lady Doneraile insisted that her husband should only undergo the simple and not the intensive method of treatment.

Some curious results were reported at the Sanitary Congress by W. J. S. Haldane. He said that it was rash to assume, as was generally done, that carbonic acid was a certain measure of the impurities communicated by human beings to air. In conjunction with Professsor Carnelly, of Dundee, he had made a number of experiments with the micro-organisms presented in the air under various conditions. They showed that in houses the number did not increase in anything like the same proportion as the carbonic acid. Even during a course of crowded popular lectures there was found to be an average of only four micro-organisms per litre, as compared with an average of about three when the room had remained empty. Nor did the number rise beyond six per litre when the room was left unventilated during the lecture, and the carbonic acid rose to nearly 40 volumes per 10,000. This observation alone shows strikingly that the carbonic acid is no measure of the number of micro-organisms in the air of a room. They therefore concluded that the organisms came from the floor and other parts of the room, and found that the cleanliness of the floor had an effect on the number of micro organisms. On the whole, however, they were satisfied that prolonged habitation had a very important influence, and that the causes under the action of which the room becomes infested with micro-organisms were evidently not merely temporary ones, but had a gradual cumulative action. They delivered a rather telling attack upon the theory that such a disease as enteric fever is easily communicated by sewer air. From the examination of the air of sewers they found that in some respects it was one of the most free from micro-organisms anywhere in a town. It is in this respect twice as much so as outside air, in summer at any rate. Professor Nägeli, of Munich, showed some years ago that micro-organisms, like other particulate matter, are not given off from moist surfaces, and, as everything inside a sewer is moist, it would not be reasonable to expect micro-organisms to be given off. The belief in the connection of sewer air with typhoid fever rests not on satisfactory evidence, but largely on *a priori* reasoning.

Dr. Francis Ogston, well-known to many generations of medical students at Aberdeen, as Lecturer on and afterwards Professor of, Medical Jurisprudence in Mareschal College for forty-four years, died recently at the age of 85. Dr. Alexander Ogston, the present Professor of Surgery, was his son.

Mr. Richard Quain, F.R.C.S., Eng., F.R.S., died on September 15. He was for a long time Professor of Anatomy at University College, London, and surgeon to the hospital. He was the younger brother of the Dr. Jones Quain who was one of the authors of the famous Quain & Sharpey's Elements of Anatomy, and the cousin of the better known Dr. Richard Quain, the editor ef the dictionary.

The epidemic of scarlet fever in London has not yet shown any signs of abatement; the number of cases under treatment increased from 1134 on September 15th, to 1308 on September 22d. The strain upon the resources of the Metropolitan Asylum Board is very severe. The mortality continues to remain at a low rate.

The Middlesex Hospital Medical School has been enlarged, and a residential college for the students has been erected in the grounds. This is only the fourth residential college open to medical students which has been organized in London, and many more are wanted.

The conjunction between the Royal College of Surgeons in Ireland and the Apothecaries' Hall in Dublin is now completed; but it is said that King's and Queen's College of Physicians in

Ireland, which is also conjoined with the College of Surgeons, will take legal steps with the view of breaking up the new scheme.

DAWSON WILLIAMS.

NOTES FROM PHILADELPHIA CLINICS.

Dr. Curtin exhibited a case of carcinoma of the stomach. The tumor could be plainly felt, in the usual locality of the pylorus, and yet the man vomited about fifteen minutes after eating, instead of two hours, as is the case with pyloric obstruction. The lecturer thinks that the man may have a cancer at the cardiac end of the stomach, as well as at the pyloric orifice, causing œsophageal dilatation, but he had not fully made out his diagnosis.

For thirty years Prof. Garretson has found almost invaluable in malarious cases, and as a tonic after capital operations, especially in malarial districts, the following preparation: Put ℥j of red cinchona bark and ℥ss of Virginia snakeroot, broken in small pieces, in a pint and a half of water. Let this simmer down to one pint; then strain and add a pint of Lisbon wine. Give a wineglassful three times a day.

Dr. Bruen exhibited a heart and its large vessels, taken from a patient who died of aneurism of aorta. There was a tumor both on the anterior and posterior aspect of the aorta. The posterior one had so pressed against the trachea as to flatten it, and also the œsophagus. The anterior tumor had pressed on the lung substance until the latter had become gangrenous.

Dr. Hirsch exhibited a case in which the decidua vera remained after labor, and the uterus failed to contract to its normal size. On using the curette a very dangerous hemorrhage occurred, which took considerable trouble to control; but after a few days a second use of the curette removed the membrane and the uterus contracted to its normal size.

In a case of hemmorrhagic phthisis, at the Philadelphia Hospital, Dr. Curtin prescribed oil of origanum, gtt. iij t. d. He recommended also the use of lycopus Virginicus, ℥j to Oj of water, making a decoction and using a wineglassful at a dose. It is a remedy which is very efficacious, though little used.

Dr. Bruen exhibited to the class a liver which weighed over nine pounds. It had a very yellow color and granular surface. The patient had some jaundice and slight abdominal dropsy. With the cirrhotic liver came a complication of pneumonia. The whole course of the cirrhosis did not lasts over nine weeks.

BLOCKLEY.—Dr. Clara Marshall made an especial clinical demonstration of the discoloration of the vulva and mucous membrane within the vagina during pregnancy. The patient had been pregnant for three months and the parts had a very decided purplish, venous hue.

In a case of chronic uterine inflammation, Dr. Clara Marshall especially recommended the hot vaginal douche with a fountain syringe; using at least two gallons of water, at the temperature of 110° F., and with an interrupted stream, if the patient could bear it.

Prof. Atkinson claims that for sore throat chlorate of sodium is preferable to chlorate of potassium, for the following reasons: It dissolves more easily, it acts more quickly, it is more easily thrown off the system, and it does not affect the kidneys.

Prof. Woodbury at the Medico-Chirurgical recommends Ferrier's snuff in coryza:

℞ Morphinæ sulphatis..... gr. v
Pulveris acaciæ..... gr. x
Bismuthi subnitratis..... gr. l
M.

Among the long prodromal symptoms, frequent in cases of typhoid fever, Prof. Waugh says that one of the most distinctive of the coming fever is a sense of fatigue after eating, followed by swelling of the abdomen and cold sweats.

Dr. Hirsch showed a child which had almost complete paralysis of the left side from forceps delivery. It could be demonstrated, especially when the child cried, as one side of the face was then greatly retracted.

For a mild and sure cathartic divide a Seidlitz powder into four parts and give one double part every fifteen minutes.

In cases of bad odor from fevers sponge the patient twice daily with equal parts of vinegar and water.

Prof. Shoemaker says that in pruritus vulvæ a solution of equal parts of borax and alum gives instant relief.

BOOK NOTICES.

PRACTITIONER'S HANDBOOK OF DISEASES OF THE EAR AND NASO-PHARYNX. (THIRD EDITION OF THE "AURAL SURGERY.") By H. MACNAUGHTON JONES, M. D., M. Ch., M. A. O. (Hon) London, I. & A. Churchell. pp. 176, 1887.

This third edition is practically a new book, being entirely rewritten with numerous cuts (127). A special feature of the present book is the addition of colored plates taken from the author's "Aural Atlas," which represent some of the more commonly occurring mobid states of the tympanum. The work is a marked improvement on the second edition; by omitting matters not of practical importance to the general surgeon, he has added in other directions what must be most valuable knowledge to the general practitioner.

L. T.

A CLINICAL MANUAL OF THE DISEASES OF THE EAR. By LAURENCE TURNBULL, M. D., Ph. G., Aural Surgeon to the Jefferson Medical College Hospital. Late President of the Subsection of Otology of the British Medical Association, etc., with a colored lithographic plate, and 114 illustrations on wood. Second revised edition. Philadelphia, J. B. Lippincott Company, 1887, pages 567. Price, in cloth, $5.00.

It is pleasant to be able to record the publication of an enlarged edition like the one before us, without increase in price. The work contains a new introduction treating of the general pathology of ear disease, the malformations and congenital defects of the auricle and meatus, and how to treat them. The succeeding 420 pages are filled with valuable matter for the intelligant physician and present no change. Then follow the subject of deaf-mutism, 67 pages, with notes on treatment, education and the prevention of mutism. The various methods of teaching are given, but the articulation method of teaching, which is now very much employed both at home and in the school, is fully treated of in this work. Dr. Turnbull has always recommended the use of the ear trumpet to assist those who have any hearing at all.

Chapter XX, containing a review of the causes and most successful treatment of the mose frequent diseases of the ear, has been rewritten, and is especially valuable to the general practitioner. Chapter XXI, on desquamative inflamation of the meatus, the membrana tympani and middle ear is new, it bestows necessary attention upon a class of cases which appear to have become more frequent. Chapter XXII is on syphilis and mumps as causes of internal ear diseases with their successful treatment by iodide of potassium, jaborandi and its active principle pilocarpin. Mastoid disease and its treatment are fully discussed, and the indications for operation given, The ophthalmoscopic examination in mastoid disease, to which the author devotes a page is very important. The author's experience with the sulphide of calcium treatment in mastoid disease was entirely negative, and he advises opening of the mastoid in every case where we are reasonably certain that cerebral disease is due to caries, or to the retention of pus in the mastoid, antrum, or cells.

There are many who would hesitate to open in every such case, though there are but few who differ with the author, concerning the uselessness of the calcium sulphide treatment.

In the appendix of 38 pages, cocaine as a local anæsthetic is considered; the author has found it useful in ear diseases, and in large and small polyip. Peroxide of hydrogen is next discussed and its value is well illustrated in suppurative conditions. Sexton's operation for the relief of chronic inflammation of the middle ear is condemned, we believe with justice, the risk being considered too great.

Diphtheritic inflammation of the nose

extending to the Eustachian tube and middle ear is considered as a not uncommon cause of deafnes. The work concludes with 20 pages on the various and best means of illuminating the eye, ear and throat, illustrated by six figures. The author concludes that the electric light is the best. As a whole the book before us is very valuable, and unlike many so-called clinical manuals, is truly deserving the title; numerous cases are given in almost every division of the book, though nowhere is the subject better illustrated by cases than in the three new chapters. L. I. L.

UNIVERSITY OF PENNSYLVANIA. VETERINARY DEPARTMENT CATALOGUE AND ANNOUNCEMENT 1887-88. Philadelphia, Printed for the University, 1887.

A well printed announcement descriptive of the curriculum pursued in the Veterinary school of the University of Pennsylvania, in which the advantages and requirements of the excellent course are set forth, with a lithographic plate of the buildings of the department, and a plan of the grounds, list of matriculates, graduates and other statistics. An interesting historical sketch of the University of Pennsylvania appears as an introductory. Our readers can obtain this pamphlet by addressing Rush Shippen Huidekoper, M. D., Dean of the Veterinary Department of the University of Pennsylvania, Philadelphia.

MISCELLANY.

FLORA MCFLIMSEY'S CONUNDRUM ANSWERED.—In the evolution of the traditional fig-leaf, much skill and ingenuity has been manifested in responding to the universal demand for clothes in civilized society. Since custom and fashion have decreed that the human body shall be almost entirely covered, the material and cut of the habiliments comes decidedly within the purview of hygiene and sanatory medicine. With regard to the material, we note a recent reform instituted by a Dr. Jaeger, of Berlin, who claims that we should dress exclusively in wool. Woollen under-clothes and woollen outer-clothes; wool on the head, wool on the feet; wool by day and wool by night; wool in summer, wool in winter; wool, wool, nothing but wool.

Perhaps it may be said that there s nothing startlingly novel in the use of wool as a material for clothing; but this exclusive use of the one material is certainly a novelty.

Dr. Jaeger found, as we all do, that only a certain proportion of the clothing found in the markets is composed of wool. He therefore set about completing his system by devising the missing garments to complete the list. His success is something few would have expected. From the heaviest of winter goods to the most diaphanous of summer fabrics, every garment needed by man, woman or child is to be found in his stock, of variety sufficient to satisfy all the demands of taste.

The woolen sheets and pillows are well worth consideration; the dress-goods and other light materials for summer wear resembled cotton or alpaca so much that only a microscopic examination of the fibre would convince us that nothing but pure wool entered into their composition.

But in the shoes Dr. Jaeger's ingenuity is best shown. These are of leather, Waukenphast shape, lined throughout with soft wool. A felt insole being removed, shows the inner leather sole to be perforated with numerous orifices. These communicate with an air space, which open into the outside air by means of a small hole in the heel. This arrangement provides for ventilation. The care with which this is provided for, reminds us that Germans are singularly subject to bromidrosis. So general is this complaint, that one of the standing regulations of the German army compels every soldier to apply daily to his feet an ointment composed of salicylic acid and suet. That ventilation of the shoe will prove a more effectual preventive we have not a moment's doubt.

How far Dr. Jaeger's system will prove successful we cannot say. The advantages in the hygienic direction are very great. But whether the world has progressed in civilization to such a degree that she can be induced to dress for health is dubitable. The imperious demands of fashion, the certainty that

with women the question of appearance will always be settled before that of health or of comfort, renders it probable that with the fair sex the system will not be adopted in its entirety. And yet, when we see how many imitations of fashionable fabrics Dr. Jaeger has made from wool alone, it is difficult to say where the possibilities in this direction end.

To us, as physicians, the matter is well worthy a careful consideration. The advantages of a strictly woolen costume should be fairly tested. It is well known that many northern men find it advisable to wear wool in hot climates. Experience has demonstrated its value in colder seasons. While in New York a few weeks ago, we made a personal investigation of this system, and were very favorably impressed by Dr. Jaeger's arguments.

TREATMENT OF SPINAL IRRITATION.—I soon learned, in my own case, that cold baths were inadmissible, and I invariably prescribed warm baths for my patients coming to Lampasas Springs for treatment. Warmth in any shape, whether atmospheric or in the form of baths, is generally agreeable to patients suffering with any form of nervous affection, particularly with irritation of the cord. Peripheral conditions are capable of modifying the functions and nutrition of the cord.

My attention was early called to the use of nitrate of silver, and I administered it in doses of from one-fourth to one-half a grain, as recommended by the books. The symptoms were manifestly aggravated by the treatment. The fault was in the size of the dose. This accounts for the failure of so many in the treatment of this disease with nitrate of silver. Spitzka does not inform us as to the size of the doses used; but if he followed the formulæ as laid down by most authors on the subject, his doses were too large, and this may have accounted for the failure of the drug in his hands. I reduced the dose to one-eighth of a grain, and then to one-tenth grain, and with the happiest results, both in my own case and in the case of nearly all whom I have treated. It is not to be expected, of course, that in tabes dorsalis a cure could be effected by any means known to science. But it is altogether possible that, if taken in time, the disease might be arrested by nitrate of silver, in one-tenth grain doses, together with tincture of iodine painted freely over the affected part.

This has substantially constituted my treatment of irritation of the spinal cord, with the addition of such other remedies, as nux vomica, arsenic, iron, etc., as circumstances seem to indicate. —CARHART, *in The Medical Age.*

A REMARKABLE JUDICIAL DECISION.—One of the most recent promulgations of the Texas Court of Appeals is so absurd that it is worth reproducing. It certainly would not be declared to be law in some other states.

A prisoner was indicted and convicted on the charge of attempting to commit a rape by force, when the facts showed that the attempt had been made by the use of chloroform. When the Court of Appeals came to review this conviction it came to the opinion that the use of chloroform took away the element of force and that the conviction could not stand. The Court arrived at the conclusion that a conviction on a charge of attempting a rape by fraud would have been correct, but to mention force vitiated the proceedings. By the same lucid reasoning if a midnight robber puts a handkerchief saturated with chloroform over the face of a sleeping victim and abstracts his valuables he does not commit burglary, but—embezzles. The Texas Court of Appeals is too technical and absurd. In another recent decision it accomplished the difficult feat of overruling a decision of the Supreme Court of the United States, and it seems to regard reversals as its main function.

AN INTERESTING NOTE IN URINE EXAMINATION.—In the section on Therapeutics and Materia Medica of the Congress at Washington, Dr. J. Gnezda, of Berlin, read a paper on "The Poison of the Cobra." In the interesting discussion which followed, Dr. Lewin, of Berlin, referred to the effects of various agents upon the spectrum of the blood. He mentioned a case in which the patient

had passed bloody urine just before death. The urine was sent to Dr. Lewin, who found that upon the addition of ammonium sulphide the bands of hæmatin appeared, showing the presence of some reducing agent. This led to further investigation of the case, when it was found that the man had committed suicide by taking chlorate of potassium. An incidental point of interest in the case consisted in the fact that the patient's life was insured in a company which did not pay in case of suicide. The first suspicion of suicide came from spectroscopic examination of the urine, thus showing the importance of these examinations to the general practitioner.

OFFICIAL LIST

OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT U. S. ARMY FROM SEPTEMBER 11, 1887, *TO SEPTEMBER* 24, 1887.

FIRST-LIEUTENANT JULIAN M. CABELL, ASSISTANT-SURGEON.—Relieved from duty in connection with the Annual Department Rifle Competition at Bellevue Rifle Range, Nebraska. Ordered for duty as Medical Officer at the "Rifle Camp for Team of Distinguished Marksmen," Bellevue Rifle Range.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE WEEK ENDED SEPTEMBER 17, 1887.

SURGEON W. H. H. HUTTON.—Granted leave of absence for thirty days. September 15, 1887.

SURGEON GEORGE PURVIANCE.—Granted leave of absence for thirty days. September 13, 1887.

PASSED ASSISTANT-SURG. S. T. ARMSTRONG—Granted leave of absence for thirty days. September 13, 1887.

PASSED ASSISTANT-SURGEON A. H. GLENNAN.—To proceed to Charleston, S. C., for temporary duty. September 15, 1887.

ASSISTANT-SURGEON J. H. WHITE.—Granted leave of absence for twenty-seven days. September 13, 1887.

ASSISTANT-SURG. SEATON NORMAN.—Granted leave of absence for twenty days. September 16, 1887.

ASSISTANT-SURGEON F. C. HEATH.—To proceed to Mobile, Ala., for temporary duty. September 15, 1887.

Week ended September 24, 1887.

PASSED ASSISTANT-SURGEON S. H. WHITE.—Promoted and appointed Passed Assistant-Surgeon from October, 1887. September 19, 1887.

ASSISTANT-SURGEON J. PETTUS.—To proceed to Savannah, Ga., for temporary duty. September 20, 1887.

ASSISTANT-SURGEON H. T. GOODWIN.—Appointed an Assistant Surgeon September 22, 1887. Assigned to temporary duty at Norfolk, Va., September 23, 1887.

CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING SEPTEMBER 17, 1887.

PASSED ASSISTANT-SURGEON RICHARD ASHBRIDGE.—Detached from Constellation and to the Naval Academy, Annapolis, Md.

SURGEON JOSEPH G. AYERS.—Detached from Torpedo Station and waits orders.

SURGEON JOHN C. WISE.—Ordered to relieve Surgeon Ayers at Torpedo Station.

MEDICAL DIRECTOR SAMUEL T. COWES.—Detached from Hospital, Chelsea, Mass., and placed on retired list, September 17.

SURGEON GEORGE P. BRADLEY.—Leave of absence extended six months, with permission, to remain abroad.

Week ending September 24, 1887.

SURGEON H. P. HARVEY,—Ordered to the U. S. S. Mohican.

SURGEON G. A. COOK—Detached from the Mohican and ordered home.

MEDICAL INSPECTOR C. J. CLEBORNE.—Promoted to Medical Director, September 18, 1887.

SURGEON T. C. WALTON.—Promoted to Medical Inspector, September 18, 1887.

PASSED ASSISTANT-SURGEON BOYD.—Promoted to Surgeon, September 18, 1887.

SURGEON J. R. TRYON.—Ordered to Marine Rendezvous, New York, October 1, 1887.

ASSISTANT-SURGEON J. G. FIELD.—Detached from Marine Rendezvous, New York, and ordered to the Vermont.

Week ending October 1, 1887.

ASSISTANT-SURGEON V. C. B. MEANS.—Ordered for examination preliminary to promotion.

PASSED ASSISTANT-SURGEON E. Z. DERR—Detached from Navy Yard, New York, and to the Nipsic.

PASSED ASSISTANT-SURGEON RICHARD ASHBRIDGE.—Detached from Naval Academy, Annapolis, Md, and waits orders.

PASSED ASSISTANT-SURGEON A. H. RUSSELL.—Ordered to the Naval Academy, Annapolis Md.

PASSED ASSISTANT-SURGEON C. G. HERNDON. Detached from Naval Dispensary, Washington, D. C, and to the Enterprise.

PAST ASSISTANT-SURGEON GEO. ARTHUR.—Detached from the Museum of Hygiene, Washington D. C.. to the Naval Dispensary.

PAST ASSISTANT SURGEON S. H. GRIFFITHS.—Ordered to the Museum of Hygiene, Washington, D. C.

MEDICAL INSPECTOR J. C. SPEAR.—Leave of absence granted until July 1, 1888, with permission to leave the United States.